

INTERSTATE 5 COLUMBIA RIVER CROSSING

Visual and Aesthetics Technical Report



May 2008

TO: Readers of the CRC Technical Reports
FROM: CRC Project Team
SUBJECT: Differences between CRC DEIS and Technical Reports

The I-5 Columbia River Crossing (CRC) Draft Environmental Impact Statement (DEIS) presents information summarized from numerous technical documents. Most of these documents are discipline-specific technical reports (e.g., archeology, noise and vibration, navigation, etc.). These reports include a detailed explanation of the data gathering and analytical methods used by each discipline team. The methodologies were reviewed by federal, state and local agencies before analysis began. The technical reports are longer and more detailed than the DEIS and should be referred to for information beyond that which is presented in the DEIS. For example, findings summarized in the DEIS are supported by analysis in the technical reports and their appendices.

The DEIS organizes the range of alternatives differently than the technical reports. Although the information contained in the DEIS was derived from the analyses documented in the technical reports, this information is organized differently in the DEIS than in the reports. The following explains these differences. The following details the significant differences between how alternatives are described, terminology, and how impacts are organized in the DEIS and in most technical reports so that readers of the DEIS can understand where to look for information in the technical reports. Some technical reports do not exhibit all these differences from the DEIS.

Difference #1: Description of Alternatives

The first difference readers of the technical reports are likely to discover is that the full alternatives are packaged differently than in the DEIS. The primary difference is that the DEIS includes all four transit terminus options (Kiggins Bowl, Lincoln, Clark College Minimum Operable Segment (MOS), and Mill Plain MOS) with each build alternative. In contrast, the alternatives in the technical reports assume a single transit terminus:

- Alternatives 2 and 3 both include the Kiggins Bowl terminus
- Alternatives 4 and 5 both include the Lincoln terminus

In the technical reports, the Clark College MOS and Mill Plain MOS are evaluated and discussed from the standpoint of how they would differ from the full-length Kiggins Bowl and Lincoln terminus options.

Difference #2: Terminology

Several elements of the project alternatives are described using different terms in the DEIS than in the technical reports. The following table shows the major differences in terminology.

DEIS terms	Technical report terms
Kiggins Bowl terminus	I-5 alignment
Lincoln terminus	Vancouver alignment
Efficient transit operations	Standard transit operations
Increased transit operations	Enhanced transit operations

Difference #3: Analysis of Alternatives

The most significant difference between most of the technical reports and the DEIS is how each structures its discussion of impacts of the alternatives. Both the reports and the DEIS introduce long-term effects of the full alternatives first. However, the technical reports then discuss “segment-level options,” “other project elements,” and “system-level choices.” The technical reports used segment-level analyses to focus on specific and consistent geographic regions. This enabled a robust analysis of the choices on Hayden Island, in downtown Vancouver, etc. The system-level analysis allowed for a comparative evaluation of major project components (replacement versus supplemental bridge, light rail versus bus rapid transit, etc). The key findings of these analyses are summarized in the DEIS; they are simply organized in only two general areas: impacts by each full alternative, and impacts of the individual “components” that comprise the alternatives (e.g. transit mode).

Difference #4: Updates

The draft technical reports were largely completed in late 2007. Some data in these reports have been updated since then and are reflected in the DEIS. However, not all changes have been incorporated into the technical reports. The DEIS reflects more recent public and agency input than is included in the technical reports. Some of the options and potential mitigation measures developed after the technical reports were drafted are included in the DEIS, but not in the technical reports. For example, Chapter 5 of the DEIS (Section 4(f) evaluation) includes a range of potential “minimization measures” that are being considered to reduce impacts to historic and public park and recreation resources. These are generally not included in the technical reports. Also, impacts related to the stacked transit/highway bridge (STHB) design for the replacement river crossing are not discussed in the individual technical reports, but are consolidated into a single technical memorandum.



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Cover Sheet

Interstate 5 Columbia River Crossing

Visual and Aesthetics Technical Report:

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Appendix

APPENDIX A: View Point Evaluation

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ACRONYMS

Acronym	Description
ADA	Americans with Disabilities Act
API	Area of Potential Impact
BNRR	Burlington Northern Railroad
BNSF	Burlington Northern Santa Fe Railroad
BPA	Bonneville Power Administration
BRT	Bus Rapid Transit
CRC	Columbia River Crossing
EIS	Environmental Impact Statement
FHWA	Federal Highway Administration
GIS	Geographic Information System
HCT	High-Capacity Transit
LRT	Light Rail Transit
LU	Landscape Unit
MOS	Minimum Operable Segment
NEPA	National Environmental Policy Act
NPS	National Park Service
NRHP	National Register of Historic Places
ODOT	Oregon Department of Transportation
SHPO	State Historic Preservation Office
UDAG	Urban Design Advisory Group
WSDOT	Washington State Department of Transportation

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1. Summary

1.1 Introduction

This report presents the evaluation of potential visual impacts that would result from the proposed Interstate 5 (I-5) Columbia River Crossing (CRC) project alternatives.

This analysis is based on conceptual designs for a range of alternatives. This report identifies the likely impacts from those alternatives and identifies potential measures to reduce the impacts, including possible options for avoiding, minimizing or mitigating impacts. Following the analysis and findings described in this report and other technical reports, and following additional agency and public coordination and input, the project sponsors will select a Preferred Alternative. The project team will further design and evaluate that alternative, refine the impact analysis and further develop mitigation measures.

1.2 Description of the Alternatives

The alternatives being considered for the CRC project consist of a diverse range of highway, transit and other transportation choices. Some of these choices – such as the number of traffic lanes across the river – could affect transportation performance and impacts throughout the bridge influence area or beyond. These are referred to as “system-level choices.” Other choices – such as whether to run high-capacity transit (HCT) on Washington Street or Washington and Broadway Streets – have little impact beyond the area immediately surrounding that proposed change and no measurable effect on regional impacts or performance. These are called “segment-level choices.” This report discusses the impacts from both system- and segment-level choices, as well as “full alternatives.” The full alternatives combine system-level and segment-level choices for highway, transit, pedestrian, and bicycle transportation. They are representative examples of how project elements may be combined. Other combinations of specific elements are possible. Analyzing the full alternatives allows us to understand the combined performance and impacts that would result from multimodal improvements spanning the bridge influence area.

Following are brief descriptions of the alternatives being evaluated in this report, which include:

- System-level choices,
- Segment-level choices, and
- Full alternatives.

1.2.1 System-Level Choices

System-level choices have potentially broad influence on the magnitude and type of benefits and impacts produced by this project. These options may influence physical or

operational characteristics throughout the project area and can affect transportation and other elements outside the project corridor as well. The system-level choices include:

- River crossing type (replacement or supplemental)
- High-capacity transit mode (bus rapid transit or light rail transit)
- Tolling (no toll, I-5 only, I-5 and I-205, standard toll, higher toll)

This report compares replacement and supplemental river crossing options. A replacement river crossing would remove the existing highway bridge structures across the Columbia River and replace them with three new parallel structures – one for I-5 northbound traffic, another for I-5 southbound traffic, and a third for HCT, bicycles, and pedestrians. There is a stacked highway/transit design variation of the Replacement crossing, for which the transit would travel through the structure of the west-southbound bridge. A supplemental river crossing would build a new bridge span downstream of the existing I-5 bridge. The new supplemental bridge would carry southbound I-5 traffic and HCT, while the existing I-5 bridge would carry northbound I-5 traffic, bicycles, and pedestrians. The replacement crossing would include three through-lanes and two auxiliary lanes for I-5 traffic in each direction. The supplemental crossing would include three through-lanes and one auxiliary lane in each direction.

Two types of HCT are being considered – bus rapid transit and light rail transit. Both would operate in an exclusive right-of-way through the project area, and are being evaluated for the same alignments and station locations. The HCT mode – LRT or BRT – is evaluated as a system-level choice. Alignment options and station locations are discussed as segment-level choices. BRT would use 60-foot or 80-foot long articulated buses in lanes separated from other traffic. LRT would use one- and two-car trains in an extension of the MAX line that currently ends at the Expo Center in Portland.

Under the efficient operating scenario, LRT trains would run at approximately 7.5 minute headways during the peak periods. BRT would run at headways between 2.5 and 10 minutes depending on the location in the corridor. BRT would need to run at more frequent headways to match the passenger-carrying capacity of the LRT trains. This report also evaluates performance and impacts for an increased operations scenario that would double the number of BRT vehicles or the number of LRT trains during the peak periods.

1.2.2 Segment-Level Choices

1.2.2.1 Transit Alignments

The transit alignment choices are organized into three corridor segments. Within each segment the alignment choices can be selected relatively independently of the choices in the other segments. These alignment variations generally do not affect overall system performance but could have important differences in the impacts and benefits that occur in each segment. The three segments are:

- Segment A1 – Delta Park to South Vancouver
- Segment A2 – South Vancouver to Mill Plain District
- Segment B – Mill Plain District to North Vancouver

In Segment A1 there are two general transit alignment options - offset from, or adjacent to, I-5. An offset HCT guideway would place HCT approximately 450 to 650 feet west of I-5 on Hayden Island. An adjacent HCT guideway across Hayden Island would locate HCT immediately west of I-5. The alignment of I-5, and thus the alignment of an adjacent HCT guideway, on Hayden Island would vary slightly depending upon the river crossing and highway alignment, whereas an offset HCT guideway would retain the same station location regardless of the I-5 bridge alignment.

HCT would touch down in downtown Vancouver at Sixth Street and Washington Street with a replacement river crossing. A supplemental crossing would push the touch down location north to Seventh Street. Once in downtown Vancouver, there are two alignment options for HCT – a two-way guideway on Washington Street or a couplet design that would place southbound HCT on Washington Street and northbound HCT on Broadway. Both options would have stations at Seventh Street, 12th Street, and at the Mill Plain Transit Center between 15th and 16th Streets.

From downtown Vancouver, HCT could either continue north on local streets or turn east and then north adjacent to I-5. Continuing north on local streets, HCT could either use a two-way guideway on Broadway or a couplet on Main Street and Broadway. At 29th Street, both of these options would merge to a two-way guideway on Main Street and end at the Lincoln Park and Ride located at the current WSDOT maintenance facility. Once out of downtown Vancouver, transit has two options if connecting to an I-5 alignment: head east on 16th Street and then through a new tunnel under I-5, or head east on McLoughlin Street and then through the existing underpass beneath I-5. With either option HCT would connect with the Clark College Park and Ride on the east side of I-5, then head north along I-5 to about SR 500 where it would cross back over I-5 to end at the Kiggins Bowl Park and Ride.

There is also an option, referred to as the minimum operable segments (MOS), which would end the HCT line at either the Mill Plain station or Clark College. The MOS options provide a lower cost, lower performance alternative in the event that the full length HCT lines could not be funded in a single phase of construction and financing.

1.2.2.2 Highway and Bridge Alignments

This analysis divides the highway and bridge options into two corridor segments, including:

- Segment A – Delta Park to Mill Plain District
- Segment B – Mill Plain District to North Vancouver

Segment A has several independent highway and bridge alignment options. Differences in highway alignment in Segment B are caused by transit alignment, and are not treated as independent options.

The replacement crossing would be located either downstream of the existing I-5 bridge. At the SR 14 interchange there are two basic configurations being considered. A traditional configuration would use ramps looping around both sides of the mainline to

provide direct connection between I-5 and SR 14. A less traditional design could reduce right-of-way requirements by using a “left loop” that would stack both ramps on the west side of the I-5 mainline.

1.2.3 Full Alternatives

Full alternatives represent combinations of system-level and segment-level options. These alternatives have been assembled to represent the range of possibilities and total impacts at the project and regional level. Packaging different configurations of highway, transit, river crossing, tolling and other improvements into full alternatives allows project staff to evaluate comprehensive traffic and transit performance, environmental impacts and costs.

Exhibit 1-1 summarizes how the options discussed above have been packaged into representative full alternatives.

Exhibit 1-1. Full Alternatives

Full Alternative	Packaged Options				
	River Crossing Type	HCT Mode	Northern Transit Alignment	TDM/TSM Type	Tolling Method ^a
1	Existing	None	N/A	Existing	None
2	Replacement	BRT	I-5	Aggressive	Standard Rate
3	Replacement	LRT	I-5	Aggressive	Two options ^b
4	Supplemental	BRT	Vancouver	Very Aggressive	Higher rate
5	Supplemental	LRT	Vancouver	Very Aggressive	Higher rate

^a In addition to different tolling rates, this report evaluates options that would toll only the I-5 river crossing and options that would toll both the I-5 and the I-205 crossings.

^b Alternative 3 is evaluated with two different tolling scenarios, tolling and non-tolling.

Modeling software used to assess alternatives’ performance does not distinguish between smaller details, such as most segment-level transit alignments. However, the geographic difference between the Vancouver and I-5 transit alignments is significant enough to warrant including this variable in the model. All alternatives include Transportation Demand Management (TDM) and Transportation System Management (TSM) measures designed to improve efficient use of the transportation network and encourage alternative transportation options to commuters such as carpools, flexible work hours, and telecommuting. Alternatives 4 and 5 assume higher funding levels for some of these measures.

Alternative 1: The National Environmental Policy Act (NEPA) requires the evaluation of a No-Build or “No Action” alternative for comparison with the build alternatives. The No-Build analysis includes the same 2030 population and employment projections and the same reasonably foreseeable projects assumed in the build alternatives. It does not include any of the I-5 CRC related improvements. It provides a baseline for comparing the build alternatives, and for understanding what will happen without construction of the I-5 CRC project.

Alternative 2: This alternative would replace the existing I-5 bridge with three new bridge structures downstream of the existing bridge. These new bridge structures would carry Interstate traffic, BRT, bicycles, and pedestrians. There would be three through-lanes and two auxiliary lanes for I-5 traffic in each direction. Transit would include a BRT system that would operate in an exclusive guideway from Kiggins Bowl in Vancouver to the Expo Center station in Portland. Express bus service and local and feeder bus service would increase to serve the added transit capacity. BRT buses would turn around at the existing Expo Station in Portland, where riders could transfer to the MAX Yellow Line.

Alternative 3: This is similar to Alternative 2 except that LRT would be used instead of BRT. This alternative is analyzed both with a toll collected from vehicles crossing the Columbia River on the new I-5 bridge, and with no toll. LRT would use the same transit alignment and station locations. Transit operations, such as headways, would differ, and LRT would connect with the existing MAX Yellow Line without requiring riders to transfer.

Alternative 4: This alternative would retain the existing I-5 bridge structures for northbound Interstate traffic, bicycles, and pedestrians. A new crossing would carry southbound Interstate traffic and BRT. The existing I-5 bridges would be re-striped to provide two lanes on each structure and allow for an outside safety shoulder for disabled vehicles. A new, wider bicycle and pedestrian facility would be cantilevered from the eastern side of the existing northbound (eastern) bridge. A new downstream supplemental bridge would carry four southbound I-5 lanes (three through-lanes and one auxiliary lane) and BRT. BRT buses would turn around at the existing Expo Station in Portland, where riders could transfer to the MAX Yellow Line. Compared to Alternative 2, increased transit service would provide more frequent service. Express bus service and local and feeder bus service would increase to serve the added transit capacity.

Alternative 5: This is similar to Alternative 4 except that LRT would be used instead of BRT. LRT would have the same alignment options, and similar station locations and requirements. LRT service would be more frequent (approximately 3.5 minute headways during the peak period) compared to 7.5 minutes with Alternative 3. LRT would connect with the existing MAX Yellow Line without requiring riders to transfer.

1.3 Long-Term Effects

1.3.1 System-level Choices

1.3.1.1 River Crossing Type and Capacity: Supplemental Crossing and Replacement Crossing

The supplemental crossing would have a greater visual impact than the replacement crossing, and the impacts would be negative. Visual quality would be reduced for the supplemental crossing due to seismic reinforcement of the existing bridge structures and the fact that bridges at two different heights and two different types would block more of the horizon and long-distance views.

Both the replacement and supplemental alternatives would increase the prominence of the river crossing bridge from all views, with the impact increasing with proximity to the bridge. Water- or shoreline-level views would be affected more by the supplemental than the replacement crossing because not all of the existing piers would line up with the piers for the new bridge, which would combine to block more water-level river channel views. Reinforcement of the existing bridge with piles and pilecaps would add many massive new elements to the bridge, which would decrease its aesthetic quality and the quality of views of the river and shorelines. Higher impacts could result from diminished views of open water and shorelines, obstructed long-distance views of the horizon, mountain profiles, or Mount Hood.

Additional negative impacts could arise from the difference in bridge styles if the new bridge is inconsistent or unharmonious with the existing I-5 bridge. Visual quality could suffer if the new bridge does not complement the existing bridge, because the compound view of two dissimilar bridge structures could appear busy or aesthetically incoherent from any viewpoint.

Both crossing alternatives would increase shadow duration or extent. Increased light and glare from vehicles would result by virtue of the fact that vehicles are distributed over a greater surface area. A new source of glare could result if the new bridge structures include smooth or mirror-like surfaces such as signs.

1.3.1.2 Transit Mode: Bus Rapid Transit and Light Rail

Visual quality and character impacts would be similar for BRT and LRT. While the BRT bridge could be slightly narrower than the LRT bridge over the Columbia River, either transit bridge would be a new bridge structure, so this small difference would likely not be noticeable to the average viewer. The North Portland Harbor transit bridge would not be attached to the highway bridge, and this would add to visual impacts; however, it would be difficult for the average viewer to discern the difference between the BRT and LRT bridge widths.

Stations for BRT and LRT would be similar in style and scale; therefore, differences between visual impacts would be negligible. Views in the immediate vicinity of new transit stations would change because the transit vehicles must stop for short durations, adding a new dynamic quality to blocks with stations. These are temporary, but repetitive impacts. The transit vehicles would not impact most views because they would not be permanent parts of any view other than at or near maintenance facilities. BRT service would have short headways, meaning that the buses would come more frequently. There could be a perceived greater decrease in visual quality for the presence of buses than for trains because in general people tend to view trains more favorably than buses.

Changes in bus routes would not produce any visual effects. Expansion or construction of maintenance facilities could have visual impacts, depending on the surroundings.

1.3.1.3 Major Transit Alignment: Vancouver Alignment and I-5 Alignment

Vancouver Transit Alignments

Changes to the character and quality of Broadway and Main Streets due to the installation of transit facilities are expected to be low level. The visual character of Main Street (north of 29th Street) could change noticeably by being widened from 80 feet to 100 feet.

The stations at 24th and 33rd Streets would be at-grade, likely single platform stations on one side of the street. The platforms and associated furnishings such as shelters, benches, paving, and signage could be designed to be compatible with the surroundings.

The Lincoln Park and Ride structure would be mostly underground, with up to two sub-surface levels and one at-surface parking level. The park and ride would be clearly visible from the residential units, but could be landscaped to screen it, if desired.

North I-5 Transit Alignments

Changes to the character and quality of 16th Street due to the installation of transit facilities are expected to be low level. The visual character of McLoughlin Boulevard, on the other hand, could change noticeably by being widened from 80 feet to 100 feet.

Placing the HCT guideway along the east side of I-5 would have low visibility south of 39th Street because it would be below the grade of surrounding neighborhoods. The HCT guideway would pass under Fourth Plain, E 29th and E 33rd before climbing at the north end to cross over SR 500 and E 39th Street. The HCT ramp over E 39th Street would introduce a visual element that would be highly visible from communities and activity centers in this area, and would compound the visual impact from the new SR 500 to I-5 ramp. The combination of both new ramps likely could completely block the view of the forested hillside beyond.

The total effect of the visual changes will depend on the context and design of the new facilities. Adding the guideway would result in loss or removal of vegetation and open space adjoining the highway, which often acts as a visual buffer for homes next to the highway. This alignment would also bring the guideway very close to the backyards of homes between the Fourth Plain – SR 500 interchange.

The Clark College Park and Ride would replace a small landscaped parking area with a three-level parking structure. This would likely be visible from the sports fields just east of the proposed site, but would not be inconsistent with the large-footprint, mid-rise buildings of the nearby campus.

The Kiggins Bowl Park and Ride would replace a landscaped parking area with a six-level parking structure. The scale of the parking structure would be inconsistent with the surroundings, which consist of open space and sports fields to the south and east, and a mixture of residential and small-scale commercial/industrial to the west.

1.3.1.4 Balance of Transit vs. Highway Investment: Increased Transit System Operations with Aggressive TDM/TSM Measures, and Efficient Transit System Operations with Efficient TDM/TSM Measures

Most of these measures do not include physical structures and would not affect the visual character or quality of the highway or its related facilities. An exception is the proposed installation of variable message signs on I-5. These would add to existing overhead signage and are large enough to dominate views in the immediate vicinity. The same is true for variable message signs at park and rides.

The addition of a dedicated bicycle-pedestrian path would be a visual impact, but this is part of all build alternatives and the overall river crossing design.

1.3.1.5 Tolling: No Toll, Standard Toll, Higher Toll, I-5 Only Toll, and I-5 / I-205 Toll (Considered as a Mitigation Measure)

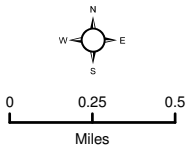
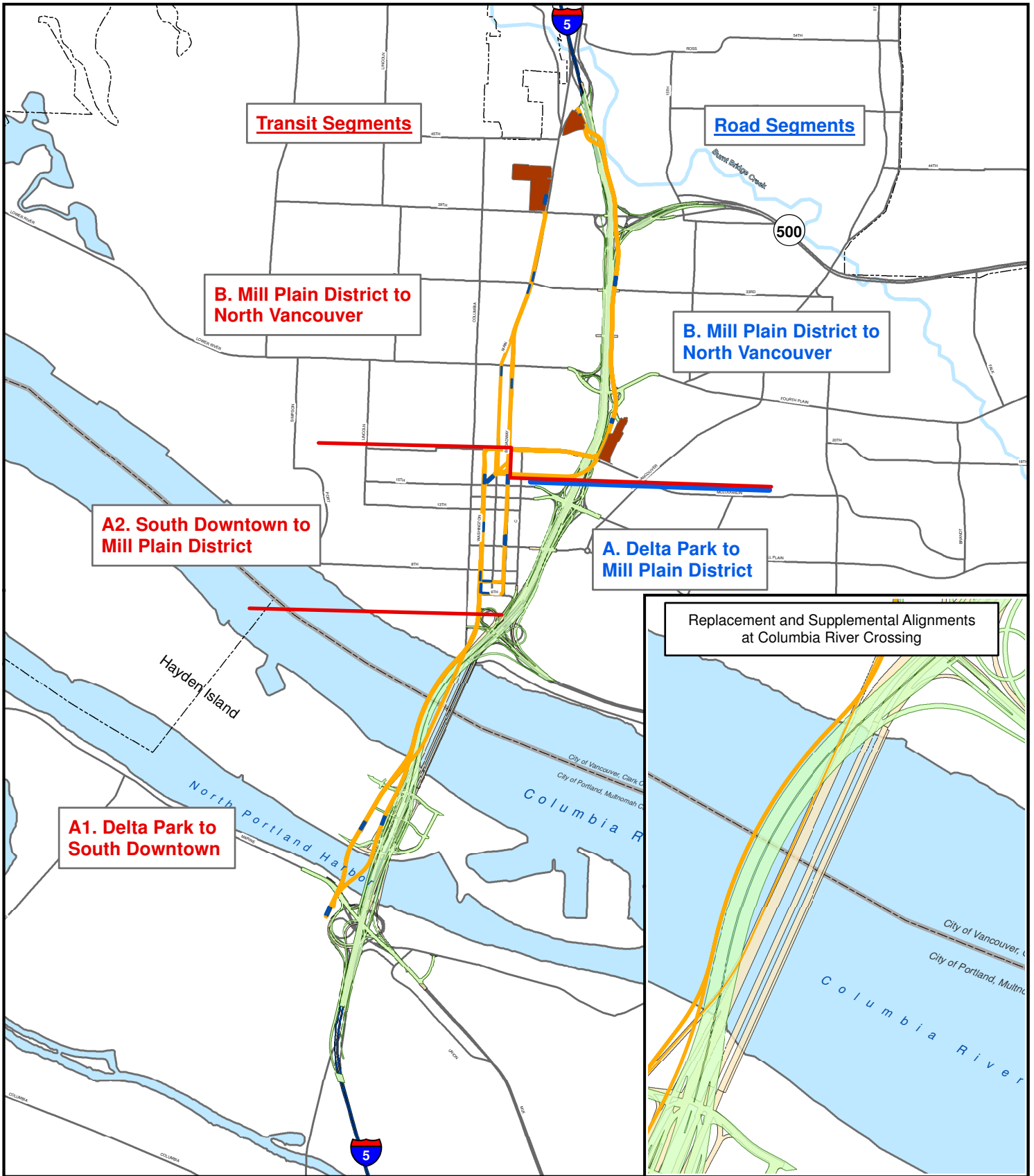
Visual impacts due to tolling could range from none (for the no toll option) to moderate (for the electronic tolling option). Overhead sign bridges and electronic tracking equipment would be very visible and would create a wider roadway, possibly resulting in moderate impacts, depending on the surroundings. If tolling is conducted electronically only, the overhead sign bridges would be noticeable structures in views from and toward the highway, resulting in low to moderate impacts depending on the surroundings.

1.3.1.6 Project Length: Full-Length Alternative and Minimum Operable Segments (MOSs)

With the Clark College Minimum Operable Segment (MOS), visual impacts to the highway and residences north of the Clark College Park and Ride would be avoided. For the Mill Plain MOS, visual impacts north of the terminal park and ride would be avoided. The Clark College, Kiggins Bowl, and a reduced size Lincoln Park and Ride would all be included with the Mill Plain MOS. The Mill Plain MOS could also require additional park and rides at 5th and Columbia Streets and 16th and Main Streets. The Clark College MOS would avoid the visual intrusion of the elevated guideway overpass ramps at SR 500 and I-5 (to reach the Kiggins Bowl Park and Ride) and the loss of the roadside landscaping and buffer landscapes between the highway and homes or parks.

1.3.2 Segment-level Choices

See Exhibit 1-2 for a map of the project area and segment boundaries.



- Transit Segment Boundaries
- Roadway Segment Boundary
- Park and Ride
- Transit Stop
- Transit Alignment Options
- Replacement River Crossing
- Supplemental River Crossing

Exhibit 1-2: Project Area and Alternatives



1.3.2.1 Highway Options

1.3.2.1.1 Replacement Alternatives

Changes to visual character and quality from the replacement crossing would result from the greater height and width of the new bridge across the Columbia River, and the widened or higher ramps for reconfigured interchanges at Marine Drive, Hayden Island, SR 14, Mill Plain, and SR 500.). These changes are discussed in detail in Section 5.2.2.

Overall there would be high-level visual impacts from the replacement crossing, but the impacts could be primarily positive.

Impacts to Columbia River main channel could be high and mostly positive. Potential impacts include:

- Removal of the complicated truss structures and lift towers of the existing I-5 bridge would dramatically open up views
 - from I-5 of the Portland and Vancouver skylines, distant shorelines, rolling hills, and mountain profiles, and
 - toward I-5 of open water and shorelines from shoreline-level and elevated viewpoints.
- Coherent, integrated bridge design that is sensitive to the context and aesthetics;
- Removing the lift towers would have a generally positive visual impact on views from downtown Vancouver;
- Modifications to interchanges would not noticeably increase heights or roadway footprint, and no visual impacts are expected;
- Removal of the existing bridge structures from the immediate waterfront would visually open much of the area immediately beneath the bridge along the river;
- Higher bridge deck would be as visible as the lift towers are now from cross streets along Sixth Street in lower Vancouver; and
- New SR 14 configuration would bring a much larger elevated ramp close to Vancouver, but this is an interchange area now and the new ramp is consistent with character of intensely-used highway corridor.

North Portland Harbor could receive moderate and negative visual impacts.

- Removal of docks, several floating homes, other structures, and bands of shoreline vegetation; and
- Addition of piers for the HCT bridge would clutter views along the slough and reduce views of open water.

Views from these locations would be affected:

- Red Lion Hotel.
- Vacant Thunderbird Hotel property.

- Waterfront along the Boise Cascade site.
- Joe's Restaurant and Waterfront Park.
- East or south-facing hotel or conference center rooms in Vancouver would be moderately or highly impacted due to increased height and width of the replacement bridge.
- Highway corridor, due to loss of landscaped edges along the highway between SR 14 and E McLoughlin Boulevard from widening I-5 for the SR 14 interchange.
- Highway corridor, due to loss of roadside vegetation.

Impacts to Fort Vancouver National Historic Reserve would be moderate to high for the following reasons:

- Lift towers would be gone, therefore visual impacts could be positive.
- Removal of the existing superstructure could reduce visual clutter depending on the design of the new bridge.
- The new SR 14 interchange would cause high visual impacts in vicinity of Fort Village. The ramp would encroach on the perimeter of the Village area, could be visually prominent from the Village, and would have incompatible scales, uses, and character.
- I-5 would be closer to the Post Hospital in Fort Vancouver

1.3.2.1.2 Supplemental Alternatives

The supplemental crossing would change the visual quality of the Columbia River, North Portland, Greater Central Park, and Downtown Vancouver landscape units in Segment A. These changes would result from the greater height and width of the new bridge and the widened or higher ramps for reconfigured interchanges at Marine Drive, Hayden Island, SR 14, Mill Plain, and SR 500. Visual impacts due to the supplemental crossing would be similar to but greater than those of the replacement crossing. Seismic reinforcement of the existing I-5 bridge would add mass to the piers supporting the bridge and this would likely degrade not only the visual character of the bridge, but the visual quality of views from the shoreline along the river as well.

1.3.2.1.3 I-5 Offset Alignment (with Replacement Bridge)

Moderate to high visual impacts would result from the addition of guideways and overpasses for HCT on the east side of I-5 and shifting the I-5 alignment to the west to accommodate new HCT structures. These actions would bring the walls and highway closer to the residences along the west side and place guideways and ramps very close to the residences and parks along the east side. This would have a negative impact on the character and quality of the yards adjacent to the corridor. Adding the guideway would result in the loss or removal of vegetation and open space adjacent to the highway, which often acts as a visual buffer for the homes next to the highway.

This alignment would also bring the guideway very close to the backyards of homes between the Fourth Plain interchange and the SR 500 interchange. The shift westward

and the new HCT structures would result in the loss of landscaped edges along the highway and the buffer landscapes between the highway and the residences and parks along the highway. Loss of landscaping inside the roadway, that now serves to soften the edges and help create a more open quality, and the addition of walls would reduce the overall visual quality of the roadway from a motorist's viewpoint.

1.3.2.1.4 I-5 Current Alignment (with Replacement or Supplemental Bridge)

Widening I-5 on both sides would result in visual impacts similar to those described for the offset alignment. Primarily this is the loss of landscaped edges along the highway that now serve to soften the edges and help create a more open quality. The visual character would remain unchanged (i.e., a major interstate highway facility), but the overall quality could be degraded by the loss of vegetation and the construction of tall retaining or sound walls. Most of the properties affected are residential and the widening would bring the roadway close to residences, creating a moderate level of visual impact.

1.3.2.2 Transit Segment A1: Delta Park to South Vancouver

Visual impacts would be identical for both the LRT and BRT high-capacity transit bridges.

1.3.2.2.1 Hayden Island Adjacent Transit Alignment

The HCT guideway adjacent to I-5 would increase the visual effects that result from the new I-5 mainline and auxiliary lanes on Hayden Island. The combined footprint would be wider because of the guideway. Additional columns at the north and south sides of the island where the guideways transition to bridge would increase the visual impact from ground level and longer distance views. The HCT bridge would pass near remaining private docks and floating homes and would result in shade and visual impacts to the docks and homes near the new bridge.

The added guideway structures and other improvements at the Expo Center in the Columbia Slough area would be consistent with the current scale and uses of the Expo Center. With the BRT option, the addition of a bus transfer facility at the northeast corner of the Expo Center would not be a visual impact because the area is an existing transit station and the no sensitive views would be blocked.

1.3.2.2.2 Hayden Island Offset Transit Alignment

The offset alignment could have slightly greater visual impacts than the I-5 adjacent alignment because HCT structures would be separated from the highway. The elevated station could be highly noticeable but, as with the adjacent option, the increased visibility could improve way-finding for transit users trying to find the station. Additional piers where the HCT guideways transition to the bridge would increase the visual impact from ground-level and longer distance views. The new guideway bridge crossing North Portland Harbor would be a new feature and would compound the visual impacts from the expanded I-5 mainline bridge over the slough. The HCT bridge would pass near remaining private docks and floating homes and would result in shade and visual impacts to the docks and boats near the new bridge.

The impacts at the Expo Center would be the same as described for the adjacent alignment. No visual impacts are anticipated here.

1.3.2.3 Transit Segment A2: South Vancouver to Mill Plain District

1.3.2.3.1 HCT Two-Way on Washington Street

Visual impacts to Washington Street due to the installation of transit facilities are expected to be low. The transit vehicles would run in the right-of-way and the necessary guideway, rumble strips or curbs, and advisory signage would not produce a large change nor introduce incompatible structures and furnishings into the streetscape. Platforms and associated furnishings such as shelters, benches, paving, and signage could be designed to be compatible with the surroundings and protect existing sight-lines and views. The context of two historic buildings, the Greeley Building at Evergreen Boulevard (housing the Koplans Furniture Store) and the St. James Church (between 12th and 13th Streets), could be affected by the presence of the nearby stations if they block views or noticeably alter the character of the surroundings. The movement and presence of the transit vehicles would not create permanent visual conflicts or changes and are therefore not expected to create visual impacts.

The larger Mill Plain station between 15th and 16th Streets would replace a parking lot west of the Carnegie Library, a historic building. Visual impacts would be determined by the character of the new transit center including scale, materials, and landscape, and the degree to which the design protects sight-lines and the quality of views.

1.3.2.3.2 HCT Couplet on Broadway/Washington

The impacts for this alignment are similar to those for the two-way Washington option. However, along Broadway the sensitive buildings are different. The recently restored Old Columbian and Ice King Buildings at Broadway and Evergreen could be affected by the presence of the alignments.

1.3.2.4 Transit Segment B: Mill Plain District to North Vancouver

Visual impacts resulting from this option would be similar for the LRT and BRT high-capacity transit options; therefore impacts are grouped as HCT impacts. This assumes that stations for either BRT or LRT are essentially the same in scale and footprint. Efficient or increased transit operations would have no visual impacts and are therefore not included in the following discussion.

1.3.2.4.1 Vancouver Transit Alignments

Visual impacts for the Broadway two-way and the Main/Broadway couplet would be the same for each and would be similar to those for Segment A1 where the guideway path is included in the street right-of-way. Changes to the character and quality of Broadway and Main Streets due to the installation of transit facilities are expected to be low level. The visual character of Main Street (north of 29th Street) could change noticeably by being widened from 80 feet to 100 feet to accommodate the center guideway path and

additional lanes for general purpose traffic. Street trees are intermittent along this stretch of road, and several mature specimens may have to be removed for the widening.

Stations at 24th and 33rd Streets and associated furnishings such as shelters, benches, paving, and signage could be designed to be compatible with the surroundings. The movement and presence of the transit vehicles would not create permanent visual conflicts or changes and are therefore not expected to be a visual impact.

The terminus station at the Lincoln Park and Ride would be located off-street within a park and ride site and would be reasonably consistent with existing uses (maintenance building complex surrounded by asphalt parking). The park and ride would be clearly visible from nearby residential units, but could be landscaped to screen it, if desired.

1.3.2.4.2 North I-5 Transit Alignment

Visual impacts to streets for this alignment would be similar to those in Segment A1 where the guideway path is included in the street right-of-way, but with additional, high-level changes resulting from placing the HCT guideway along the east side of I-5. Adding the guideway would result in the loss or removal of vegetation and open space adjacent to the highway, which often acts as a visual buffer for homes next to the highway. This alignment would also bring the guideway very close to the backyards of homes between the Fourth Plain and SR 500 interchanges. The HCT guideway would have low visibility south of SR 500 because it would be below the grade of the surrounding neighborhoods and would pass under Fourth Plain, 29th and 33rd Streets. New sound walls would likely be constructed, taller than the existing sound walls. The guideway would start to rise just north of 33rd Street to elevated ramps over SR 500 and E 39th Streets. These ramps would be highly visible in that area and could block long-distance views.

Changes to the character and quality of 16th Street from installing transit facilities are expected to be low level. The visual character of McLoughlin Boulevard, on the other hand, could change noticeably by being widened from 80 feet 100 feet to accommodate the center guideway path and lanes for general purpose traffic. The necessary striping or tracks, rumble strips and curbs, and advisory signage would not produce a large change or introduce incompatible structures and furnishings into the streetscape.

The stations at Arnada, Clark College Park and Ride, 33rd Street, and Kiggins Bowl Park and Ride could be designed to be compatible with their surroundings. The movement and presence of the transit vehicles would not create permanent visual conflicts or changes and are therefore not expected to be a visual impact.

The Clark College Park and Ride would replace a small landscaped parking area and the three-level parking structure would likely be visible from the sports fields just east of the site. However, the changes would not necessarily be inconsistent with the large-footprint, mid-rise buildings of the campus and the VA campus to the north.

The Kiggins Bowl Park and Ride would replace a landscaped parking area with a six-level parking structure. The scale of the parking structure is inconsistent with the surroundings, which consist of open space and sports fields to the south and east, and

mixture of residential and small-scale commercial/industrial parcels to the west. It would be visible from these locations, but given the mixed nature of the area's activities, the visual impacts are likely to be considered low level. To reach the Kiggins Bowl Park and Ride, the guideway would rise over I-5 on an elevated ramp, which would be partially visible from Leverich Park and highly visible to motorists on I-5. The visual impact may be moderate because the highway already has many overpasses through Vancouver.

1.3.3 Full Alternatives

This section describes the impacts from No-Build Alternative and the four full alternatives. These are representative, multimodal combinations of highway, river crossing, transit and pedestrian/bicycle alternatives and options for the entire project area. The full alternatives are also the level at which visual impacts must be discussed because people see integrated, whole scenes with both transit and highway changes, if present. The HCT mode choice (BRT or LRT) and the tolling choice make very little difference in visual impacts. Therefore, for the visual impact discussion the full alternatives are grouped into just two categories: replacement crossing with HCT (Alternatives 2 and 3), and supplemental crossing with HCT (Alternatives 4 and 5).

1.3.3.1 No-Build Alternative

There would be no visual changes to the project area if the existing I-5 bridge remains in place. The bridge would continue to be a dominant feature in views near the crossing and visible from many places in Vancouver and Fort Vancouver. As development in the area continues to modernize or replace buildings and structures, the bridge may become the sole remaining element from the era of steel bridge construction. This could be seen as positive or negative. As long as the bridge is maintained and painted, views containing the bridge should not decline in quality.

1.3.3.2 Replacement Crossing with HCT

The primary elements of this alternative that would affect visual quality and character are new vehicle bridge structures across North Portland Harbor and the Columbia River, and transit bridges, stations, and guideways. The visual quality of the entire length of the corridor and all landscape units would be affected because the HCT option places dedicated guideways along the east side of I-5 mainline north of E McLoughlin Boulevard, and shifts the highway alignment west. Visual impacts would occur from: the greater heights and widths of the three new structures across the Columbia River; the widened or higher ramps for reconfigured interchanges at Marine Drive, Hayden Island, SR 14, Mill Plain, and SR 500, and the effective widening of I-5 corridor due to the addition of guideway and guideway ramps along I-5. Except in the portion of the crossing over North Portland Harbor, the transit bridge would contribute to the greater width, regardless of whether the option is BRT or LRT. Please refer to Section 5.2 for a full discussion of expected visual impacts.

1.3.3.3 Supplemental Crossing with HCT

The primary elements of this alternative that would affect visual quality and character are: a new bridge structure, transit bridges, stations, and guideways. Visual impacts due to the supplemental crossing would be similar to but greater than those of the replacement crossing. The new bridge structures and ramps would have an increased footprint and visual presence. Seismically reinforcing the existing I-5 bridge would add mass to the columns supporting the bridge and this would likely degrade not only the visual character of the bridge, but the visual quality of views from the shoreline along the river as well. Impacts due to the I-5 alignment for HCT would be the same as for the replacement alternatives. Please refer to Section 5.2 for a full discussion of expected visual impacts.

1.4 Temporary Effects

During construction the visual quality of views to and from the project area may be temporarily altered. Construction-related signage and heavy equipment would be visible at and in the vicinity of construction sites. Vegetation may be removed from some areas to accommodate construction of the bridge, new ramps, and the HCT guideway. This would degrade or partially obstruct views or vistas. Short-term changes to the visual character of areas adjacent to the alignment could result from:

- Construction vehicles and equipment.
- Clearing and grading activities resulting in exposed soils (until replanting or repaving occurs).
- Erosion control devices such as silt fences, plastic ground cover, and straw bales.
- Dust, exhaust, and airborne debris in areas of active construction.
- Stockpiling of excavated material.
- Staging areas used for storage of equipment and materials.
- Disruption to the navigation corridor.

Impacts would be greatest in areas where the new bridges are being built.

Temporary lighting may be necessary for night construction of certain project elements, to minimize disruption to daytime traffic. This temporary lighting could affect residential areas by exposing residents to glare from unshielded light sources or by increasing ambient nighttime light levels.

1.5 Mitigation

Mitigation for temporary construction-related effects would include:

- Shielding of construction site lighting to reduce spillover of light onto nearby residences and businesses; and
- Locating construction equipment and stockpiling materials in less visually sensitive areas, when feasible, and in areas not visible from the road or to residents and businesses in order to minimize visual obtrusiveness.

Mitigation for permanent effects could include:

- Replanting or planting vegetation and street trees for screening (for example, along noise walls) or visual quality;
- Minimizing visual impacts to historic and cultural resources, public parks, and open spaces;
- Shielding new transit stations and facility lighting;
- Minimizing structural bulk of new structures; and
- Complying with existing urban or community design guidelines.

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2. Methods

2.1 Introduction

This section describes the methods that were used to collect data and evaluate potential visual quality and aesthetic impacts for the I-5 CRC project. The analysis was developed to comply with the National Environmental Policy Act (NEPA), applicable state environmental policy legislation, and local and state policies, standards and regulations. NEPA (1970) states that federal actions should "...assure for all Americans safe, healthful, productive and aesthetically and culturally pleasing surroundings..."

2.2 Study Area

The analysis area for visual quality assessment is the "viewshed." A viewshed is the aggregate landscape that can be seen from anywhere within the project area, and that has views of the project area. A viewshed analysis area is delimited by the surrounding topography, vegetation, and built environment, and may differ from project-defined primary and secondary areas of potential impact (API). The primary API is the area most likely to experience direct impacts from construction and operation of proposed project alternatives. Most physical project changes would occur in this area, though mitigation could still occur outside of it. The secondary API represents the area where indirect impacts (e.g., traffic and development changes) may occur from the proposed project alternatives.

2.3 Effects Guidelines

The visual quality and aesthetics assessment was based on the synthesis of a set of broad criteria that include pedestrian or motorist experiences, the presence of panoramic or scenic views, overall character and quality of the area, scale and contrast between elements in the area, and other factors. There are three generally accepted impact levels (low, moderate, or high) used to assess and summarize impacts to visual resources. These are defined by the criteria shown in Exhibit 2-1, adapted from Federal Highway Administration (FHWA) guidelines (FHWA 1989):

Exhibit 2-1. Visual Impact Levels and Criteria

Low	Moderate	High
<ol style="list-style-type: none"> 1. No physical changes are expected to result from the proposed project. 2. Any remodeling of existing structures for project includes visually blending the remodeled buildings into the surrounding area. 3. Proposed structures would be located in areas that do not exhibit a defined visual character (areas made up of different uses and scales of structures, and with no landmarks or historic structures). 4. Proposed project is compatible with visual character of surrounding area. 	<ol style="list-style-type: none"> 1. Proposed construction includes new structures that have a different scale, color, location, or orientation from surrounding structures. 2. Proposed project is located within an historic district, adjacent to historic structures, or adjacent to major public buildings designed as focal points (e.g., city halls and courthouses). 	<ol style="list-style-type: none"> 1. Project scale contrasts with its surroundings (e.g., contains structures bulkier than those in nearby or introduces voids such as parking lots, into well-defined street spaces). Magnitude of impacts will be greater in areas with recognized visual characters perceived by the community as assets and encourage use of the area. 2. Proposed project would disrupt important views (e.g., views of mountains, oceans, rivers, or significant manmade structures).

Adapted from FHWA 1989.

To gauge the degree of visual impact, the project team visited the project area and documented key views of the I-5 bridge and highway with photographs, and conducted visual quality and character evaluations from selected viewpoints to determine the existing (“before”) and altered (“after”) rankings. The project team used worksheets derived from both ODOT and WSDOT evaluation forms that were descriptive (visual character) and numeric threshold-based (visual quality). Evaluation views were chosen according to the criteria discussed below and with input from key stakeholders. In addition, photograph-based visualizations were used to illustrate the scale and location of selected alternatives at locations of special concern.

2.4 Data Collection Methods

Data collection and assessment methods followed the FHWA visual quality and aesthetics assessment methodology (FHWA 1989). This methodology was developed behalf of communities adjacent to proposed transportation projects as a way to adequately and objectively consider the potential visual impacts. The FHWA methodology has become an accepted framework for describing and analyzing a transportation project’s visual effects and for developing the social and physical contexts for visual impact analyses. The evaluation sequence was as follows:

1. Establish the project’s visual limits (viewshed) and define the inherently distinctive subareas in the project area (landscape unit) by visiting the project area and using geographic information system (GIS) maps.
2. Determine who has views of and from the project (viewers) using project maps and reviewing relevant planning documents.
3. Describe and assess the existing built and natural environments (existing conditions or affected environment).
4. Select evaluation viewpoints in the project area and assess those views as they exist before and as they are likely to be after the project.

5. Select views and viewpoints to be used for graphical visualizations that illustrate likely changes due to the project.
6. Describe the likely changes in visual quality that would result from the proposed alternatives.

The first three steps established baseline or existing visual conditions and the extent of the project's visual context. Steps 4 and 5 were the basis for determining the level of changes in and impacts to the visual character or quality of the project area, which were then determined in Step 6. The process also helped to identify and suggest general mitigation measures.

Visualization and evaluation viewpoints (Steps 4 and 5) are places where substantial numbers of sensitive viewers have views of representative or typical features of the proposed alternatives, or of high quality views. Evaluating visual quality from these viewpoints is a useful way of understanding existing conditions and potential visual impacts. Photographs from many of the viewpoints are used in Section 4, Affected Environment, to help portray existing conditions. Exhibit 2-2 is a locator map for the photograph viewpoints, and Appendix A contains the raw results from the evaluation in spreadsheet format.

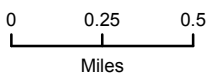
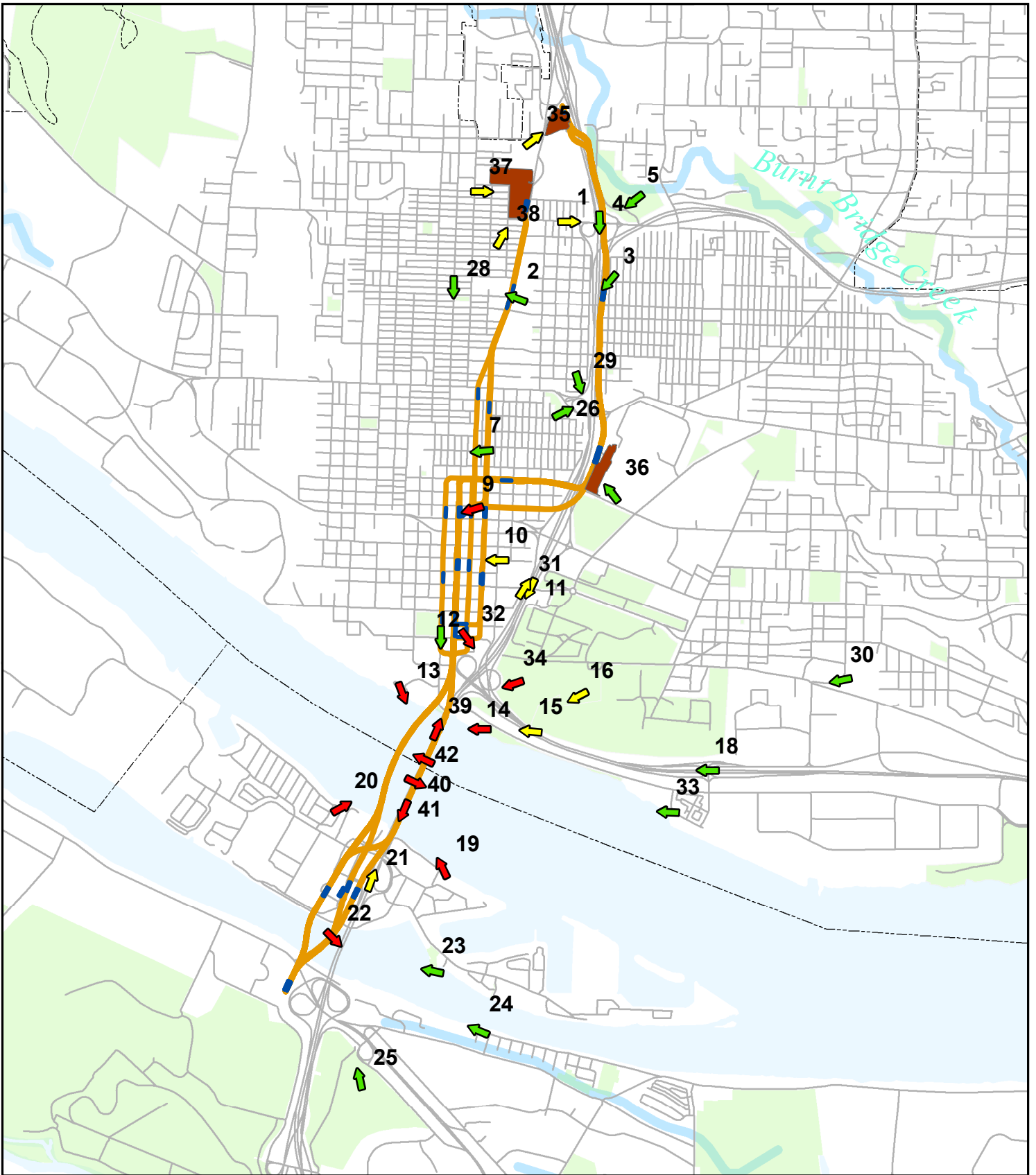
2.5 Analysis Methods

Potential cumulative effects from this project are evaluated in the Cumulative Effects Technical Report. Please refer to this report for an evaluation of possible cumulative effects.




In order to objectively evaluate a largely subjective experience, the evaluators used descriptive and numeric worksheets to assess visual quality and character. Descriptive worksheets were used to identify and describe the visual character of resources and objects in the viewshed and landscape units. Numeric worksheets were used to assess the before and after conditions of selected views, using accepted, predefined numeric significance thresholds. The differences between the before and after numeric values and the degree of overall change in visual quality and character indicates the level of visual impact.

Visual quality assessment uses a set of parameters and an accepted vocabulary to describe visual conditions and changes in visual character or quality. These parameters and vocabulary include familiar, everyday words used as technical terms. Since this can be confusing, the key terms and parameters that are used for visual quality assessment are defined below.

Views are what can be seen from the project area and what can be seen of the project area from the surrounding areas. Views are defined by geography and built and natural features, and are described or assessed from a given vantage point, called the *viewpoint*. *Viewers* are the people who have views of or from the project. Viewers are discussed in terms of general categories of activities, such as residents, boaters, joggers, or motorists, and in terms of their sensitivity to views.



Degree of Potential Change

-  high
-  moderate
-  low

-  Park and Ride
-  Transit Stop
-  Transit Lines

Exhibit 2-2: View Points



Viewshed is the sum total of all views looking from and looking toward the project area. This is one of the two study areas for visual quality assessment, the other is the landscape unit. Since sight-lines can extend far beyond project bounds, a viewshed may not match project-defined areas of potential impact. A project's viewshed is determined through GIS mapping and site visits.

Landscape units are smaller areas within a viewshed that are defined by distinctive boundaries and characteristics. A landscape unit is a helpful tool for thoroughly understanding the project area. Each defined landscape unit has a distinctive landscape character, has a specific geographic location, and has some degree of clear views within the unit.

This assessment described and evaluated three composite factors for each landscape unit, as described below:

Visual Character is defined by the visual resources, elements, and the relationships between them. These relationships are typically described in terms of dominance, scale, diversity, and continuity. Visual resources and elements include:

- Landforms: type, gradient, and scale
- Vegetation: type, size, maturity, and continuity
- Land uses: size, scale, and character of associated buildings and ancillary site uses
- Transportation facilities (including HCT stations): type, size, scale, and directional orientation
- Overhead utility structures and lighting (including LRT overhead catenaries and substations): type, size, and scale
- Open space: type (e.g., parks, reserves, greenbelts, and undeveloped land), extent, and continuity
- Viewpoints and views to visual resources
- Water bodies, historic structures, and downtown skylines
- Apparent grain or texture (e.g., the size and alternation of structures and non-built properties or open spaces of the landscape)
- Apparent upkeep and maintenance

Visual Quality is the subjective value of the visual experience. The assessment assigns a numeric value to three criteria that describe the quality of the existing conditions and likely future conditions, if the project is built. The criteria are: the memorability or distinctiveness of the landscape (*vividness*), the degree to which the landscape is a harmonious mix of elements (*unity*), and the degree to which the landscape is free of eyesores or elements that do not fit with the overall landscape (*intactness*).

Low *vividness* indicates a landscape that is mundane or non-descript. Moderate vividness indicates the presence of some features that have striking and attractive attributes such as textures, colors, shapes, or sizes. High vividness indicates the presence of a dominant feature or a collection of features that is distinctive and very memorable.

Low *unity* indicates that the manmade features of a landscape were placed and built without sensitivity to the natural setting. Moderate unity indicates that manmade features are somewhat responsive to the natural setting. High unity indicates that the natural and built components of a landscape are in balance and harmony with each other. High unity attests to the careful design of individual components and their relationship in the landscape.

Low *intactness* indicates that the integrity of the landscape is greatly reduced, either by the loss of large portions of the landscape from the view or the prevalence of incompatible structures. The incompatibility can be due to conflicting scales, colors, or purposes, among others. Moderate intactness indicates the presence of some features that are not compatible with the existing landscape, or a loss of part of the landscape. High intactness indicates that the landscape is still basically in one piece because it is not broken up by features that are out of place. An unbroken expanse of native prairie vegetation would have high intactness.

Viewer Response is a combination of viewer *exposure* and *sensitivity* to visual quality. Viewer exposure considers the combined effects of the physical location of viewer groups, the number of people exposed to a view, and the duration of their view. It includes both highway users and people in the surrounding area. Sensitivity is the degree to which a viewer expects a particular visual character and the extent to which that character is important to the viewer. It considers the combined effect of the activities a viewer is engaged in, the visual context, and the values, expectations, and interests of a group or person involved in a particular activity or context.

3. Coordination

Visual quality and aesthetic conditions are influenced by all of the factors that shape an environment, such as the presence of parks or historic and cultural features. The visual quality project team met with other technical leads to coordinate the sharing of information and to identify and select the evaluation and simulation viewpoints. Other technical reports were reviewed for information pertinent to the existing and future visual quality and aesthetics of the viewshed. Exhibit 3-1 lists the reviewed technical reports.

Exhibit 3-1. Summary of Other Data Affecting Assessment

Report	Trigger(s)	Information to be Used	Gaps, Timing Issues, Other Possible Information Shortfalls
Neighborhoods	Identify viewer groups and their expectations	Results presented in Impacts Report	Technical Reports drafted in parallel, making exchange of information late in the process.
Aviation	Addition or alteration of light and glare	Lighting placement, intensity, glare	Availability of data.
Parks and Recreation	Changes to parks, bike-pedestrian paths, and other recreation areas	Results presented in Impacts Report	Technical Reports drafted in parallel, making exchange of information late in the process.
Cultural and Historic Resources	Changes to resources that are related to or caused by changes in the visual context	Results presented in Impacts Report	Technical Reports drafted in parallel, making exchange of information late in the process.
Land Use	Confirm status of planning documents such as Vancouver City Center Plan	Results presented in Existing Conditions Report	

In addition to this internal coordination, the project team sought input from the National Park Service (NPS) regarding the Fort Vancouver National Historic Reserve. Members of the project team met with the NPS to discuss the project and its implications, and also conducted site visits. Evaluation and simulation viewpoints were selected with input from the NPS as to key or sensitive locations and views.

The project team has also been coordinating with the Urban Design Advisory Group (UDAG). The UDAG advises CRC on the appearance and design of bridge, transit and highway improvements. Specifically, the group has addressed:

- The integration of input from the community on the appearance of bridge, transit and highway designs;
- The incorporation of context sensitive design and sustainability; and
- The development of Guidelines for Visual Impact and Urban Design.

This bi-state group is led by Vancouver Mayor Royce Pollard and Portland Commissioner Sam Adams. The 14 members from Oregon and Washington contribute diverse professional and community perspectives on a variety of topics including architecture, aesthetic design, cultural and historic resources, community connections, and sustainability.

Information developed in the Urban Design Working Group meetings has been used to develop Guidelines for Visual Impact and Urban Design. These guidelines have provided minimal guidance to this analysis, but will greatly help inform the development of final design treatments.

Meetings of the UDAG were be led by the CRC project team, using approaches that allowed the rapid visualization of ideas, views of bridge elements, intersection geometry, shape and form, and other approaches to allow participants to understand the visual impact of their suggestions.

4. Affected Environment

4.1 Introduction

Federal and state highways are highly visible public resources that can negatively change the surrounding visual resources. Visual impacts to adjacent neighborhoods from new projects or alterations are typically of great interest to those communities, and can cause resistance to the project on the part of the affected public. Existing visual resources and the context for the project must be evaluated objectively in order to reasonably determine the degree of visual impact. This helps to ensure that visual impacts and the communities' reactions to the impacts are adequately addressed. This assessment process is supported and directed by the National Environmental Policy Act of 1969 (NEPA).

This section presents the results of the visual quality and character assessment for conditions that currently exist. It describes the overall landscape character of the project area and identifies important views, landscapes, or landmarks that are character-defining aspects of the study area. This section also identifies groups of viewers who have views of or from the project and assesses their sensitivity to views.

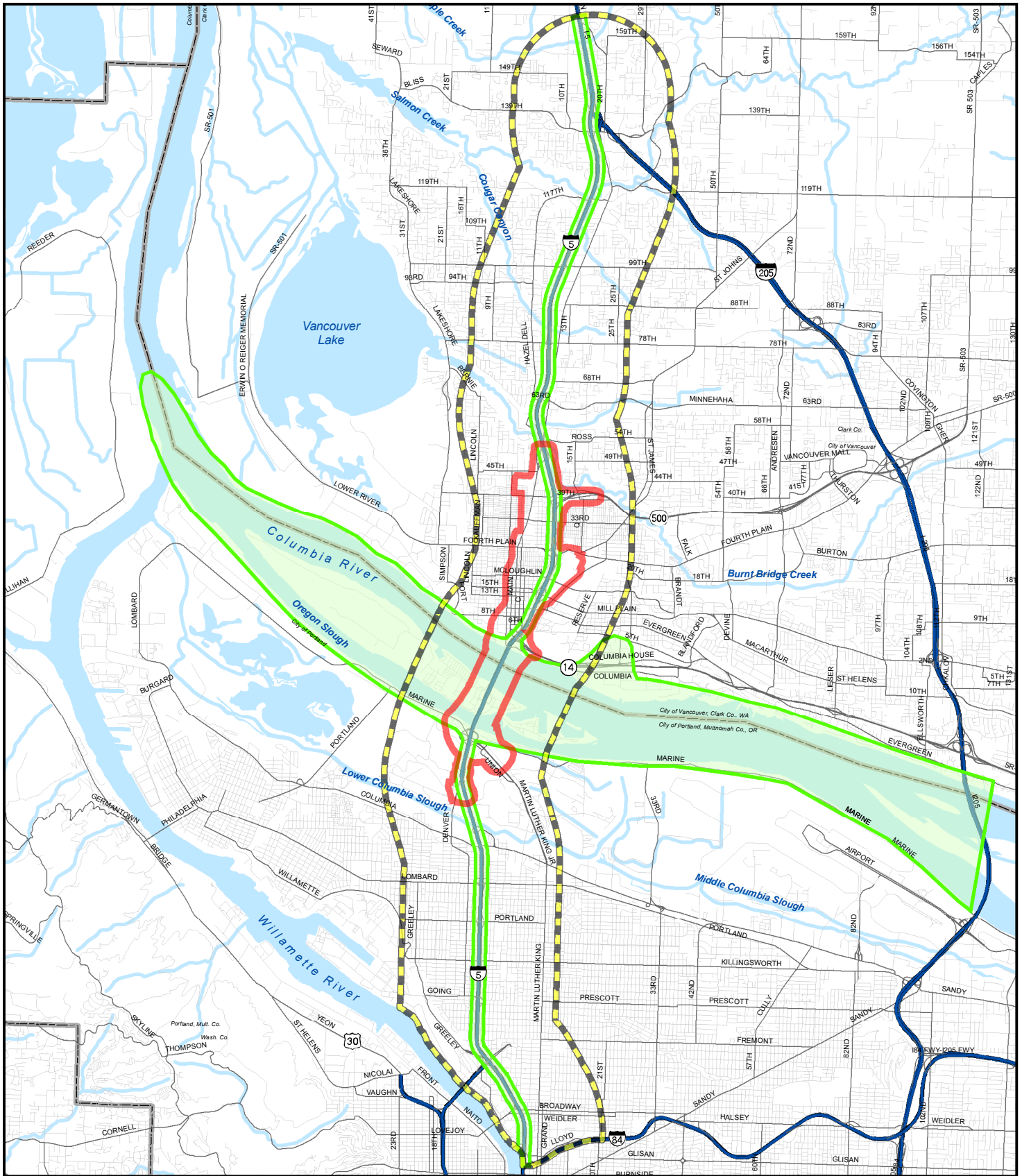
4.1.1 Viewshed

The CRC viewshed (Exhibit 4-1) includes unobstructed, long-distance views up and down the Columbia River and narrow, constrained views along the I-5 corridor. Not shown in the viewshed diagram are the narrow view corridors along a few north-south streets in Vancouver that terminate in partial views of the lift towers.

4.1.2 Landscape Units

The division of the viewshed study area into landscape units (LUs) was based on the criteria given in Section 2.5. The visual attributes and resources that helped define the units were:

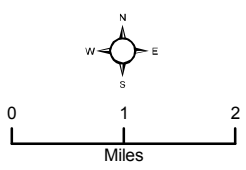
- Existing development: building scale and massing, development texture, and land use patterns;
- Topography (land form), vegetation, open space, and water patterns;
- Street grid patterns;
- Parks, trails, and other recreation areas;
- Areas of special visual or aesthetic character; and
- Buildings, landmarks, or development clusters that are important in defining the visual character and uses of an area.



Areas of Potential Impact

- ▭ Primary API
- Standard Secondary API
- Viewshed

Exhibit 4-1: Viewshed



Describing the APIs and the viewshed according to these attributes resulted in defining five landscape units (Exhibits 4-2 and 4-3), which are discussed individually below. The landscape units do not match the transit or roadway segments used to describe project segment areas (Exhibit 1-2), which were based on project functional or operational factors. However, the segment that contains most of the landscape unit is identified in the discussions below.

Exhibit 4-2. Landscape Units

Landscape Unit	Visual Character	Visual Resource
Burnt Bridge Creek	Riparian corridor and residential	Green highway corridor (driver's perspective)
Vancouver Downtown-Residential	Primarily residential with urban core	Esther Short Park, Tualatin Hills, portions of the Portland skyline
Greater Central Park	Open space of campus and park	Officers Row, the Stockade, parks
Columbia River	Riverine, industrial	Mt. Hood, Tualatin Hills, Columbia River and its shoreline
Columbia Slough	Mixed industrial-commercial and sports fields, marinas	North Portland Harbor, Tualatin Hills, Mount St. Helens, Washington Cascades, stands of mature trees, Vanport Wetlands (west of I-5).

Visual quality was evaluated for selected views from specific viewpoints for the existing conditions assessment and the results are summarized here (Exhibit 4-3). The worksheets are provided in Appendix A and are an important part of the information that determines visual quality.

Exhibit 4-3. Summary of Visual Quality Ratings for all Landscape Units

Landscape Unit	Viewer Sensitivity	Intactness	Unity	Vividness
Columbia Slough	Low (driving) to high (recreation)	Moderate	Moderate	Low
Columbia River	High	Low to moderate	Low to moderate	High
Vancouver Downtown-Residential	Moderate to High	High	Moderate	Low
Greater Central Park	Moderate to High	High	High	Moderate to High
Burnt Bridge Creek	Low to Moderate	Moderate	Moderate	Low

4.2 Columbia Slough Landscape Unit

The Columbia Slough landscape unit (LU) is the portion of the lower Columbia Slough watershed that lies between Marine Drive on the north and N Columbia Boulevard/NE Lombard Street on the south (Exhibits 1-2, 4-4, and 4-5). It is located entirely in Segment A (Delta Park to Mill Plain district), extends east and west of I-5 to the limits of the secondary API, and includes the Bridgeton and northern Kenton neighborhood of North Portland.

4.2.1 Visual Character

The visual character of this LU is defined by level open fields and recreation areas, several sloughs, and the overlay of large parking lots and large footprint buildings with diverse uses. Industrial, recreational, and transit developments are scattered throughout the area amid large tracts of open space. There are a number of destination points including the Expo Center, West Delta Park, Portland International Raceway, and the Heron Lakes Golf Course, all west of I-5. The MAX LRT line parallels I-5 on the west, with a station near the Expo Center off-ramps. Portland Meadows Race Track, Delta Dog Park, Portland Meadows Golf Course, and East Delta Park are located east of I-5. Along NE Bridgeton Road there is some private development in the form of moderate-scale apartments and condominiums and moderate- to small-scale private marinas.

The Scenic Views, Sites, and Drives Inventory (City of Portland 1988) identifies the entire Columbia Slough as a scenic drive (SD 11-03), acknowledging that it is actually several unconnected segments of slough and several secondary sloughs. The slough is valuable as wildlife habitat and for recreation. The views are primarily inward-looking, but are an important part of the recreation and aesthetic experience. It is protected under a special management plan.

This area is heavily crisscrossed and partitioned by roads. I-5 separates the less-developed land on the east side from the developed areas on the west. Martin Luther King Jr. Boulevard roughly separates the sports district from the light industry district. Major roads and streets in this area generally curve to follow lot boundaries. Unpaved and small roads crisscross the interiors of parks and wetlands.

Open space consists of large paved parking lots, turf, and undeveloped land. The parking lots are associated with the Expo Center, industrial operations, sports complexes, and Portland Meadows. The expanses of turf are associated with the sports fields, while the undeveloped areas are agricultural, stormwater holding ponds, or riparian lands. Development and open space both have coarse scale and texture because of the very large-footprint buildings, large parking lots, sports fields complexes, and large lot sizes.

The dominant vegetation in this LU is turf and grassy fields. Trees and shrubs are sparse and tend to be in clusters or along streets. Street trees line Martin Luther King Jr. Boulevard and occur intermittently along other roads. Delta Park has large sequoias and poplars along its west boundary, these dominate the visual foreground on the east side of I-5. Ditches or creeks and the southern shore of the Columbia Slough are lined with nearly continuous bands of trees and shrubs.

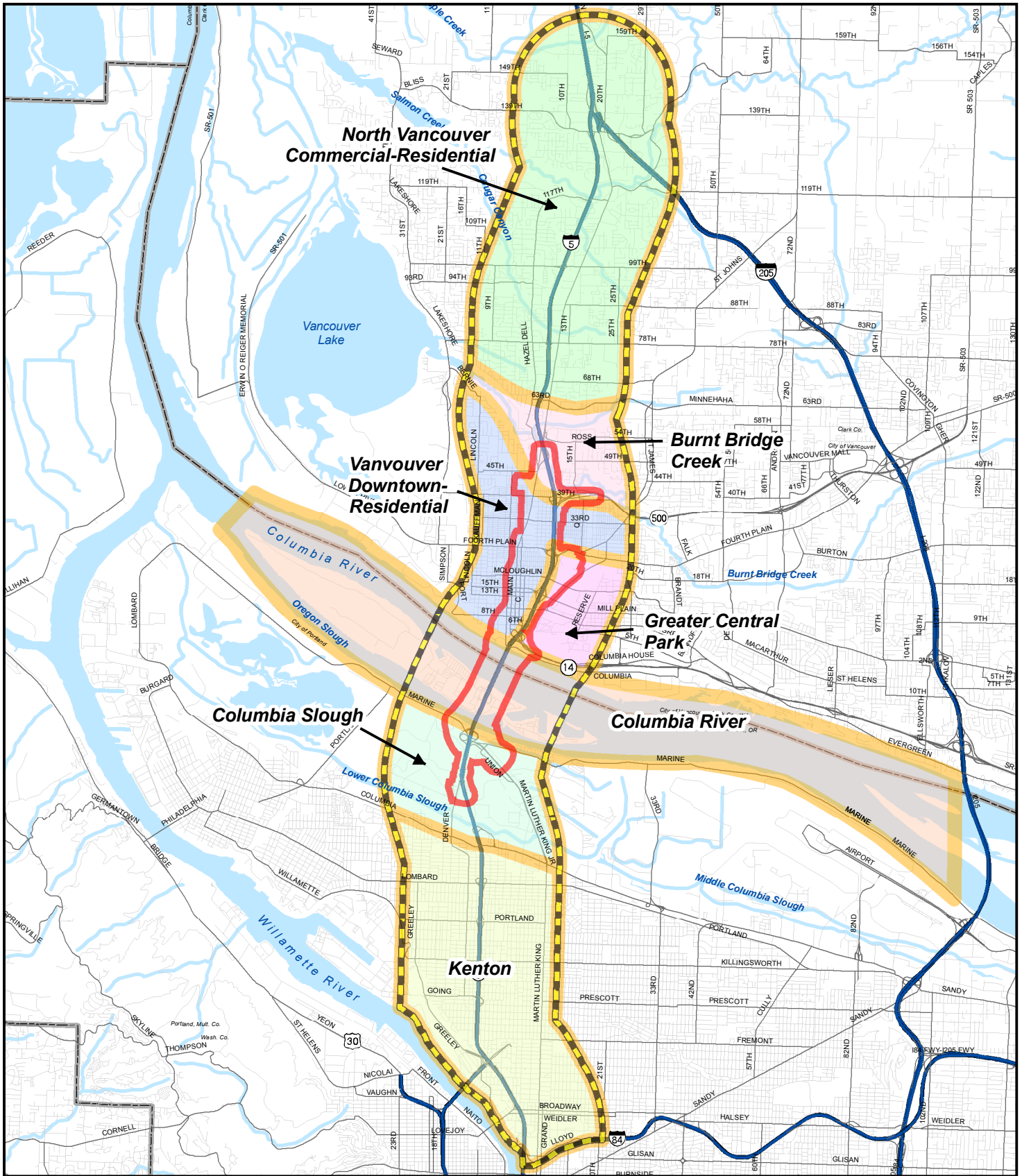
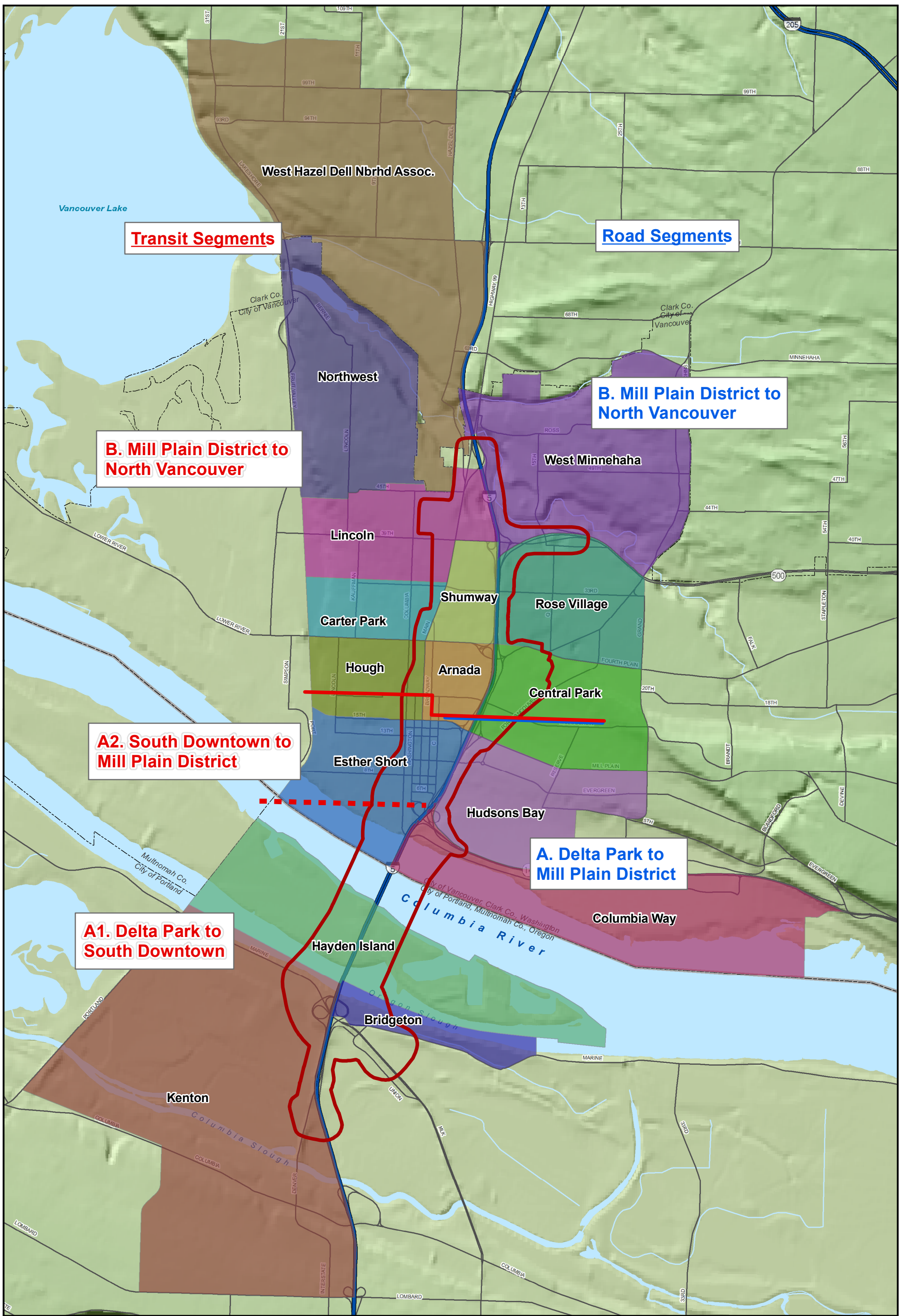


Exhibit 4-4: Landscape Units



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Transit Segments

Road Segments

B. Mill Plain District to North Vancouver

B. Mill Plain District to North Vancouver

A2. South Downtown to Mill Plain District

A. Delta Park to Mill Plain District

A1. Delta Park to South Downtown

A. Delta Park to Mill Plain District

- Primary API**
- Transit Segment Boundary**
- Transit Subsegment Boundary**
- Roadway Segment Boundary**

Exhibit 4-5: Neighborhoods and Segment Boundaries



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Views within the landscape unit are for the most part unconstrained. Despite the height of the raised I-5 roadway, the highway facility is only intermittently visible from the east side (Exhibit 4-6) due to buildings, walls, and tree canopies. Views from the west side of I-5 are fairly unconstrained and do include the I-5 berm and roadway. Views outward from I-5 are dominated, obscured, or blocked by power lines, loading cranes, highway and commercial signage, and highway structures (ramps, overpasses). A motorist could see rooftops and bands of trees, see glimpses of Portland Meadows to the east, and the slough and tall stacks of shipping containers in the railroad storage yard to the west.

**Exhibit 4-6. Columbia Slough – Delta Park:
Northeast Toward On-Ramp – View Point 25**



4.2.2 Visual Quality

Viewers in this area are a diverse mix of auto travelers on I-5 and cross streets, park users, and cyclists and pedestrians on the non-motorized trail. Drivers are likely to have low sensitivity to outward views because they are focused on traffic conditions, and there are limited views outward from the highway corridor. Passengers or other travelers who can observe the surroundings could have a higher sensitivity; but the visual character of the corridor is that of an interstate highway flanked by large-scale buildings, with the associated signage and structures. Some details of the highway's elements have been designed to be aesthetic features, such as a custom screen on an overpass or the shapes of bridge piers. People who are in the area for recreation, such as cyclists and park users, are likely to have high sensitivity to such details and views in general because they are moving slowly and expect to see park-like, open landscapes.

Within this area intactness and unity are moderate (Exhibit 4-3) because of the continuity and openness of large sports and grass fields on the east side of I-5 and wetlands on the west side. The open expanses allow extended views within the recreation areas. The large parking lot and structures of the Expo Center are out of character with the green character of the majority of the Columbia Slough landscape unit, but are contained in a well-defined area associated with the interchange, and do not sprawl into the wetlands. Vividness is low because there are no memorable or dramatic views or features visible from the landscape unit.

4.3 Columbia River Landscape Unit

The Columbia River landscape unit is within Segment A (Delta Park to Mill Plain) and includes North Portland Harbor, Hayden Island, and the Columbia River and its shoreline (Exhibits 1-2, 4-4, and 4-5). The river channel is broad and flanked by short, steep bluffs and flat beaches. Hayden Island is level and flat with areas of fill, and separated from the Oregon mainland by North Portland Harbor. North Portland Harbor has been reshaped by development, including the construction of levees decades ago along the south side of the slough. These levees are character-defining elements in the slough landscape and are eligible for listing in the National Register of Historic Places (NRHP).

4.3.1 Visual Character

The overall character of this LU is defined by the near-continuous development along and use of the Columbia River, which includes the I-5 bridge and North Portland Harbor. Development is river or water-oriented with emphasis on access to and views of the river. I-5 bridge dominates views in the APIs and is visible from most of the viewshed. The eastern bridge, carrying northbound I-5 traffic, is listed in the NRHP and has been an iconic landmark in this LU for decades.

Development is continuous along North Portland Harbor and Columbia River shorelines. It consists of moderate-scale, low-rise hotels and restaurants; houseboats, apartments, manufactured homes, and condominiums; and small to moderate-scale private marinas, primarily in North Portland Harbor. Pier 99 just east of I-5 on Hayden Island is a historic remnant of original commercial uses. Heavy and light industries are located on both sides of the river. Hayden Island contains a large commercial mall (Jantzen Beach Center) and other large-scale, low-rise retail box buildings, which are surrounded by large paved parking lots. The texture of this area is a mix of very fine (residential and marinas) and coarse (large-footprint buildings and large lot sizes). Near I-5 development is coarse (large commercial buildings).

This LU contains several destination points including the Red Lion Hotel, Jantzen Beach Center and other retail centers, Lotus Isle Park in Oregon, and Waterfront Parks, Waterfront Renaissance Trail, and waterfront restaurants in Washington. Nearness to and views of the river are the primary attractions for the hotels, parks, and trails.

Residential development is found on the northwestern and eastern portions of Hayden Island. The residences in the northwestern portion are manufactured homes. In the eastern portion, there are single-family and multifamily dwellings, along with houseboats on the river. There is little to no vegetation, except in the vicinity of the marinas and beaches and along the roads of a manufactured home neighborhood.

Open space consists of expanses of open water, shoreline palisades and parks, and two small parcels on both sides of I-5 between N Hayden Island and N Tomahawk Island Drives.

Views from North Portland Harbor contain many structures such as docks, marinas, and the I-5 bridge across the slough (Exhibits 4-7 and 4-8). From the interior of Hayden Island and I-5 mainline, the river and the bridge are not usually visible due to the height of the low to mid-rise buildings or the density of tall masts in the marinas. From I-5 the view is dominated by highway structures and signage, and nearer the river, by the I-5 bridge (Exhibits 4-9, 4-10, and 4-11).

Exhibit 4-7. North Portland Harbor: West toward I-5 Bridge – View Point 24



Exhibit 4-8. North Portland Harbor: toward Southeast at I-5 Bridge – View Point 22



Exhibit 4-9. Hayden Island: North toward the I-5 Bridge – View Point 21



Exhibit 4-10. Columbia River: North toward Vancouver, Washington, Skyline – View Point 39



**Exhibit 4-11. Columbia River: West
toward Portland West Hills – View
Point 42**



The Columbia River creates an open view corridor toward the east to Mount Hood (Exhibit 4-12) and west to the Tualatin Hills. The Columbia River itself is a scenic resource (City of Portland 1988), particularly to the east where vegetation lines the northern shore. The existing I-5 bridge is the dominant structure in this LU. It can be seen from most points along the river and many viewpoints with some elevation (Exhibits 4-13 to 4-16). The industrial character of the towers and the complexity of the trusses are not in harmony with the sinuous lines of the river channel and the hill and mountain profiles on the horizon. However, the bridges and towers are an iconic landmark from many viewpoints because of their historic nature and having long been part of the view.

**Exhibit 4-12. Columbia River: East
Upstream along River toward
Mount Hood – View Point 40**



**Exhibit 4-13. Vancouver Waterfront:
Southeast at I-5 Bridge and Oregon
Shoreline – View Point 13**



**Exhibit 4-14. Vancouver Waterfront Park:
West at I-5 Bridge – View Point 14**



**Exhibit 4-15. Hayden Island: Northwest at
I-5 Bridge and Vancouver, Washington,
Skyline – View Point 19**



**Exhibit 4-16. Hayden Island: Northeast
toward the I-5 Bridge – View Point 20**



The Scenic Views, Sites, and Drives Inventory (City of Portland 1988) identified three scenic locations that lie within the Columbia River LU.

1. The Kelley Point Park Panorama (VP 01-02) in Kelley Point Park, at the confluence of the Willamette and Columbia Rivers, has unobstructed views up and down the Columbia River. Views eastward include oblique, partial views of the I-5 bridge as a small feature, but the bridge is largely obscured by Hayden Island. Protection measures exist for this viewpoint.
2. The intersection of NE 33rd Street at Marine Drive (VB 07-02) offers a panoramic view of the Columbia River that includes the I-5 bridge. The bridge contributes to the picturesque quality of the view because the outline of the bridge at this distance mirrors the landform of Hayden Island and is in harmony with the shoreline moorages and river landscape. There are no protection measures for the viewpoint.

3. Marine Drive is considered to be a scenic drive (SD 12-04), but the emphasis is on views eastward to Mount Hood. There are no protection measures for the viewpoint or the scenic drive.

4.3.2 Visual Quality

Viewers in this area are a diverse mix of travelers on the I-5 bridge and side streets, boaters on the river, park and trail users, and people in airplanes from Pearson Airfield and the Portland International Airport. Drivers are likely to have low sensitivity because they are focused on traffic and driving. Recreationists, air passengers, pedestrians, and vehicle passengers do have time to observe the environs and are likely to have high sensitivity to the views and visual character of the area. They are also likely to have higher expectations for a visually pleasing experience, particularly if walking across the bridge, boating, or using one of the waterfront trails or parks.

Intactness and unity are low to moderate and vividness is high in the Columbia River landscape unit. Intactness and unity vary with viewpoint, but are generally low from viewpoints near the bridge. The uses and scales of the industrial structures along the shoreline are not harmonious with the natural and scenic character of the river. The same is true of the bridge and especially the piers, which obscure or block, and generally degrade views of the river. From distant viewpoints, intactness and unity are moderate because the bridge and shoreline structures are small features in the greater landscape of the river channel (Exhibit 4-17). Vividness is high because of the scenic or dramatic views of the Columbia River and Mount Hood, and for views of the I-5 bridge.

Exhibit 4-17. Columbia River – Ilchee Statue: West toward I-5 Bridge – View Point 33



4.4 Vancouver Downtown and Residential

The City of Vancouver and unincorporated portions of the Vancouver urban growth area occupy the plateau and plains north of the Columbia River. This landscape unit is built primarily on a south-trending slope that starts on the southern bank of Burnt Bridge

Creek and ends at the northern bank of the Columbia River. It lies mostly in Segment B (Mill Plain district to North Vancouver) with a small portion in the northwest corner of Segment A (Exhibits 1-2, 4-4, and 4-5). I-5 is a physical and visual barrier between communities in this landscape unit.

4.4.1 Visual Character

This landscape unit contains Vancouver's older neighborhoods including Lincoln, Carter Park, Shumway, Hough, Arnada and Esther Short on the west side of I-5 and Rose Village on the east side of I-5. The Rose Village neighborhood also includes the Fort Vancouver Historic Cemetery, immediately east of I-5. The landscape unit is bounded by the limits of the secondary API on the west, the railroad tracks on the south, and the Burnt Bridge Creek valley on the north.

The overall visual character of the LU is of finely textured urban form, which includes single and multi-family homes, mixed use buildings and an urban commercial and business core. Development is continuous and moderately dense throughout this LU. It consists of residential housing of all types and ages, mixed-use buildings, recreation centers, schools, and a downtown business and commercial core. There are many historic or vintage buildings and homes throughout the LU that contribute to a distinctive residential urban character. Some of the neighborhoods have expressed concern (in their planning documents) for preserving the street trees and vegetation that are important to the visual quality of their neighborhoods.

Commercial uses have clustered along Main Street, Broadway, and McLoughlin Boulevard and in the Esther Short neighborhood downtown. The Uptown business district (Main Street between McLoughlin and Fourth Plain Boulevards) includes mixed-used buildings. Industrial uses are located in the southwest portion of the Esther Short neighborhood along the Columbia River and the rail yards. The downtown commercial area includes retail, office, industrial, and residential buildings.

The Esther Short neighborhood is the cultural, entertainment, office, and civic center of Vancouver and Clark County. Within this neighborhood are resources that are significant to the entire area including City Hall, the County Public Service Center, a state crime lab, the Federal Building, and nearby similar offices that form a government campus. Community facilities include a train station, a regionally significant park (Esther Short Park), government offices, a bus transit center, and the new Convention Center. Esther Short Park is a large city park near the revitalization area of downtown Vancouver. The park is the site of many festivals, concerts, and the Vancouver Farmers Market.

Vancouver has identified buildings of concern that may have or could have historic resource status and would be sensitive to visual impacts (City of Vancouver 1995). Exhibit 4-18 presents buildings that are listed as historic or those in which the public has vested interest.

Exhibit 4-18. Possible and Listed Historic Resources in Vancouver

Building	Location
C.C. Dept Store	101 E 8th
Pearlman Building	705 Main St.
Chronis Building	617 Main St.
605-607 Main Street	605-607 Main St.
Heritage Building	601 Main St.
Vancouver National Bank	801 Main St.
Schofield Building	600 Main St.
Donegan Building	614 Main St.
Cady Building	109 W 7th St.

The predominant vegetation types in this landscape unit are street trees of mixed ages, residential landscaping, and ornamental landscaping associated with public parks, schools, and business and commercial areas. The city has a formally landscaped gateway entrance at the intersection of I-5 and E 15th Street.

The street system is a north-south and east-west oriented grid that is broken occasionally by large lots and Main Street where it runs obliquely through North Vancouver. The grid allows long views up and down the streets and contributes to the sense of overall cohesion. Streets range in size from narrow two-lane residential to wider boulevards in downtown (Exhibit 4-19). These streets have overhead lights, transmission lines, signage, and traffic control structures. Because of the continuity of the street trees and the presence of mature park vegetation, the overhead appurtenances are not obvious. The residential area has a fine texture because of the generally small-scale street grid, the small- to moderate scale of building footprints, and lot sizes. The texture of downtown is medium because the grid is larger with large lots for parks, apartment and condominium complexes, and wider streets.

Exhibit 4-19. Vancouver: West along 12th Street – View Point 10



The existing I-5 bridge is visible from several north-south streets and various locations throughout Vancouver. It does not dominate views because many buildings, street signs, fixtures, and street trees are in the foreground and middle ground and dominate the view. The lift towers are part of the urban view looking south between downtown buildings (Exhibit 4-20) and can be seen from as far north as 33rd Street along Columbia (Exhibit 4-21). Exit and entrance ramps are somewhat visible, but are largely screened by buildings and mature trees. From the conference center and hotels along the north shoreline the bridge is highly visible because views are unobstructed.

Exhibit 4-20. Vancouver: South from Columbia Street and Sixth at I-5 Lift Towers – View Point 12



Exhibit 4-21. Vancouver: South from Columbia Street and 33rd at I-5 Lift Towers – View Point 28



4.4.2 Visual Quality

Viewers in this landscape unit are travelers on I-5 and local streets including: commuters, shoppers, visitors, tourists, and residents; and slower moving observers including recreationists and residents living adjacent to I-5. Residents and visitors to the commercial and business areas may be sensitive to view quality because they are likely to expect an attractive, familiar urban or neighborhood environment. The highway facility is not visible from most of the downtown area and neighborhoods; however, the ramps and highway noticeably decrease the quality of views that include them. Most of the drivers on I-5 are likely to have low to moderate sensitivity to views because their attention will be focused on traffic and driving. The motorist's view from I-5 is a wide highway with several overpasses and groomed roadside landscapes. The I-5 bridge is intermittently visible from the southbound lanes near E Mill Plain Boulevard and dominates the view south of the SR 14 interchange. Passengers or other travelers who can observe the surroundings could have a higher sensitivity; however, the roadbed is slightly below grade here, which limits lateral views.

Intactness is high for this landscape unit because the continuity and stylistic coherence of the neighborhoods and the downtown area are high. Unity is moderate because, even though there are no wide or extensive views within the landscape unit, views along streets tend to be a harmonious mix of similar scale buildings, street trees, and residential

and urban activity centers. Vividness is low overall because there are no memorable or dramatic features that create noteworthy views. The exception occurs downtown, where buildings overlooking the river could have vivid views from upper floors of the river and distant landscapes. Visual resources that can be seen from taller buildings and along the River's edge include Mount Hood, Mount St Helens, the West Hills of Portland, the broad expanse of the Columbia River, and (from a few locations) the tall buildings in downtown Portland. Exhibit 4-3 summarizes the visual quality ratings for the Vancouver landscape unit.

4.5 Greater Central Park Landscape Unit

The Greater Central Park landscape unit is on a south-trending slope that extends from E Fourth Plain Boulevard to the railroad berm paralleling the Columbia River. It lies equally in Segments A and B (Exhibits 1-2, 4-4, and 4-5). The railroad berm acts as a visual and physical boundary on the south, I-5 acts as a visual and physical boundary on the west, and the secondary API edge is the eastern boundary. This landscape unit includes the Fort Vancouver National Historic Reserve and the Central Park and Hudson's Bay neighborhoods. Please also see the Cultural and Historic Resources and Parks and Recreation Technical Reports for additional information concerning the Fort Vancouver National Historic Reserve.

4.5.1 Visual Character

The overall visual character of this LU is park-like campus and open field. Development is recreation and education-oriented with the previous military/commercial activities having evolved into historic landscapes for recreation activities.

East Reserve Street separates development styles in this landscape unit. To the west are Fort Vancouver National Historic Reserve, campuses (Clark College, Washington State School for the Blind, Veterans Administration offices and hospital), parks, and expanses of open space, and to the east are hillside residential areas. North of Mill Plain Road the scale and architecture of public buildings (Hudson's Bay High School, Clark College, Public Library, Officers Row, Luepke and Marshall Community Centers) and landscapes establish the civic character of Vancouver's Central Park unit. These institutions are also important resources for the City of Vancouver.

The Fort Vancouver National Historic Reserve is a nationally recognized historic and recreation resource and draws hundreds of thousands of visitors each year. The fort site is a broad, grassy plain bounded by I-5 on the west, SR 14 on the south, and the Grandview hillside on the east. The Burlington Northern Railroad berm blocks views of the river from the interior of the fort. Fort Vancouver has plans to build a multicultural gathering place (The Village) in the northwest corner of the plain near the SR 14 and I-5 interchange (Exhibit 4-22). To the south, a pedestrian overpass (the Land Bridge) is under construction over SR 14 to reconnect the Fort to its southern property landing just east of Apple Tree Park. The Land Bridge is part of the Lewis and Clark bicentennial celebration, known as the Confluence Project. It will be an important symbolic and physical connection and will provide panoramic views of the river and the I-5 bridge. The park-like campus areas have large, irregular lot sizes and building styles that range from a

modern college campus to a historic fort and settlement. Streets tend to be broad thoroughfares that follow campus boundaries and are either perpendicular to I-5 or curve obliquely across lots. The residential area is structured by a small-scale north-south street grid and small-footprint dwellings. Streets vary in style and size appropriate to their settings.

Exhibit 4-22. Fort Vancouver: Southwest from the Village at I-5 Truss Arches and Lift Towers – View Point 34



Vegetation and landscaping are highly diverse. Fort Vancouver's landscaping includes mature street trees, groves of trees dispersed over expanses of lawn, and cemetery and other special landscapes. In the fort some landscaping has been reconstructed to reflect original designs and uses. The parks and campuses have a wide variety of landscaping styles and vegetation, including sports fields, ornamental plantings around buildings, and street and parking plantings. The residential portion of the unit has mature street trees and yard landscaping.

The I-5 bridge is visible from Pearson Airfield, the Fort's plain, and is also partially visible over the stockade fence (Exhibit 4-23) and from the upper floor of the bastion (Exhibit 4-24), a lookout tower that is part of the stockade. From areas north of E Eighth Street the bridge is less visible due to the increased distance and the presence of tall street trees or structures. While the arches of the I-5 bridge are not visible from most locations in this LU because of topography, the lift towers are frequently visible (Exhibit 4-25). The towers dominate mid to distant views from the Washington side because they are close to the Washington shoreline. Views of I-5, or sections of I-5, are part of the visual character of the major roads that intersect I-5 such as Evergreen Road (Exhibit 4-26). Except for a few locations on hillsides (Exhibit 4-27), there are few unobstructed views of visual resources (e.g., the Tualatin Hills or the Columbia River).

Exhibit 4-23. Fort Vancouver: Southwest from Inside Stockade at I-5 Truss Arches and Lift Towers – View Point 16



Exhibit 4-24. Fort Vancouver: Southwest at BNRB Berm and I-5 Bridge – View Point 15



Exhibit 4-25. SR 14 Westbound: West at I-5 Lift Towers – View Point 18



Exhibit 4-26. I-5 at Evergreen Road Overpass: Southwest at I-5 Bridge – View Point 11



Exhibit 4-27. Grand Boulevard, Vancouver: Southwest at I-5 Bridge – View Point 30



4.5.2 Visual Quality

Viewers in this landscape unit are travelers and commuters on I-5 and its crossing streets, residents living adjacent to I-5, visitors to the schools and hospital, tourists visiting the fort, users of Pearson Airfield, and certain residents with homes on southwest-facing hills. Tourists are likely to be moderately to highly sensitive to views and visual quality because they expect to see scenic or familiar, pleasant landscapes and have the time to enjoy the views. Residents are also likely to be moderately to highly sensitive to the visual quality of views from their homes and neighborhoods. The elevated roadway and ramps are visual barriers to views between Vancouver and the Greater Central Park area.

Intactness and unity are high within this landscape unit. Intactness is high because of the near-continuous expanses of park-like landscapes of the campuses and Fort Vancouver. There are few intrusions to disrupt the landscape, and the buildings are fit in their settings. Unity is high because of the picturesque views of this park-like character available from many viewpoints. Vividness is moderate to high, depending on the location. The interior of the landscape unit has moderate vividness because, although there are no memorable or striking features there, it is generally beautifully landscaped and maintained, and the historic nature of the Fort's old buildings is notable. Vividness is high for views from hillside residences (for example, near Grand Boulevard) that have views of the Fort, the river and the bridge and will be high from the pedestrian overpass now under construction. Exhibit 4-3 summarizes the visual quality ratings for the Greater Central Park landscape unit.

4.6 Burnt Bridge Creek Landscape Unit

The Burnt Bridge Creek landscape unit is a riparian valley-plain between steep-sided hills with a greenbelt of riparian vegetation, including mature trees. The unit lies entirely in Segment B and contains the neighborhoods of West Minnehaha and the southern portion of West Hazel Dell (Exhibits 1-2, 4-4, and 4-5). The unit is bounded by steep slopes, NW Overlook Road, and NE 63rd Street on the north; and the channel's steep slopes and SR

500 on the south. The channel is a broad plain on the east side of I-5 and narrows on the west side as it approaches Vancouver Lake.

4.6.1 Visual Character

Development in this landscape unit is primarily low-density, single-family residential and includes two schools. A Bonneville Power Administration (BPA) substation and office complex adjoins I-5 on the east side. The narrow band of development along the west side of I-5 consists of dispersed one- to two-story single-family homes and a few cluster developments. West of these homes is the open space of the creek floodplain. Other open space throughout the LU consists of riparian greenbelts and stands of mixed woodlands on the creek channel slopes, young to mature street trees, and residential landscaping. A wide corridor for high-power transmission lines cuts obliquely toward the southwest parallel to the riparian channel.

Streets are mostly residential and are organized in a rough grid that has been adapted to the hilly terrain. There are overhead power and communication lines, signage, and illumination poles. I-5 is not generally visible from the residences due to their distance from the roadway and the hilly, wooded terrain.

4.6.2 Visual Quality

Viewers in this area are travelers on I-5 and residents passing through the corridor on their way to or from home. Most of these viewers are likely to have low to moderate sensitivity to views because their attention will be focused on traffic conditions and driving. Passengers or other travelers who can observe the surroundings could have a higher sensitivity; however, the visual character of the corridor is that of a tree-lined interstate highway with the associated signage and structures. Viewers will also include small numbers of residents and employees with views of the highway facilities.

Intactness and unity are moderate in this landscape unit because development is fairly uniform in type and scale and fits into the hilly wooded landscape. Vividness is low because there are no memorable features, but views are framed by tall trees, curving roads, and the hilly topography creating a pleasant and rural quality. Exhibit 4-3 summarizes the visual quality ratings for the Burnt Bridge Creek landscape unit.

5. Long-Term Effects

5.1 How is this section organized?

This chapter describes the direct and indirect long-term impacts expected from the I-5 CRC alternatives and options. Section 5.2 describes impacts from the No-Build Alternative and the representative full alternatives that include specific highway, transit, bicycle, and pedestrian combinations. Section 5.3 is a summary-level description of the highway and transit components individually. Section 5.4 discusses projects that are not in the project area but that would be affected by the I-5 river crossing alternatives. Section 5.5 compares the highway and HCT alternatives to one another. This approach provides a comprehensive description and comparison of (1) the combination of system-level and segment-level choices expressed as five specific alternatives (2) discrete system-level choices, and (3) discrete segment-level choices from different perspectives.

5.2 Impacts from Full Alternatives

This section describes the impacts from the No-Build Alternative and the four full alternatives. These are representative combinations of highway, river crossing, transit and pedestrian/bicycle alternatives and options for the entire project area. The full alternatives represent the system-level choices that have the greatest effect on overall project performance, impacts, and costs. The full alternatives are also the level at which visual impacts must be discussed because people see integrated, whole scenes with both transit and highway changes, if present.

The HCT mode choice (BRT or LRT) and the tolling choice make very little difference in visual impacts. Therefore, for the visual impact discussion the five full alternatives, including No-Build, are grouped into just two categories: replacement crossing with HCT, and supplemental crossing with HCT.

5.2.1 No-Build Alternative

With the No-Build Alternative, the existing bridge would continue to be a dominant feature in views near the crossing and visible from many places in Vancouver and the Fort Vancouver National Historic Site. As development in the area continues to modernize or replace buildings and structures the bridge may be the sole remaining element from the era of steel bridge construction. This could be seen as visually positive or negative. As long as the bridge is maintained and painted, views containing the bridge should not decline in quality, except in the event of a major earthquake.

5.2.2 Replacement Crossing with HCT (Alternatives 2 and 3)

The primary elements of these alternatives that would affect visual quality and character are new highway bridges across North Portland Harbor and the Columbia River, and new transit bridges, stations, and guideways. The visual quality of the entire length of the

corridor and all landscape units would be affected. Visual impacts would occur from: the greater heights and widths of the three new structures across the Columbia River; the widened or higher ramps for reconfigured interchanges at Marine Drive, Hayden Island, SR 14, Mill Plain, and SR 500, and the effective widening of I-5 corridor due to the possible addition of guideway and guideway ramps along I-5. The transit bridge option would contribute to the greater width regardless of whether the option is BRT or LRT, except in the portion of the crossing over North Portland Harbor.

5.2.2.1 Columbia Slough Landscape Unit

In the Columbia Slough LU there would be low level visual impacts from the replacement alternatives. The HCT impacts would be the same for BRT or LRT, and would be low to non-existent.

The reconfiguration of the Marine Drive interchange ramps would not change the visual character of the area, nor would it noticeably change the visual quality. The new ramp from I-5 to Martin Luther King Jr. Boulevard would be several feet higher than the existing ramp, which would make the ramp more visible from a few locations in Delta Park where there are views through the tree border. Similarly, the ramps may be more noticeable from a hotel due east of the interchange. However, since the footprint of the interchange is not increased, overall visual impacts to those views is likely to be low. Expanding the station at the northeast corner of the Expo Center would not be a visual impact because the area is an existing transit station and because no sensitive views would be blocked. The addition of a guideway (and bus transfer facility with the BRT option) would be consistent with the existing visual character and quality.

There are two additional design options for the Marine Drive Interchange (the southern and the diagonal alignments). The diagonal realignment of Marine Drive would divide the Expo Center Complex by removing about 3 acres of land on the north side of the complex. The northern building of the Expo Center would be removed to provide right-of-way for Marine Drive. Realigning Marine Drive south of Expo Center requires acquisitions of two existing buildings located at the SW corner of Marine Drive and Force Avenue. There are few sensitive views that would be impacted by these options.

5.2.2.2 Columbia River Landscape Unit

The replacement alternatives would have high level visual impacts in this LU. These impacts could be positive if the new structures are attractive and sensitive to the context. The HCT option would be the same for BRT or LRT in this LU and would be an additive impact because the HCT guideway would be part of the new bridge structure.

North Portland Harbor, Hayden Island, and the Columbia River would have high level visual impacts due to the widening and reconfiguration of the I-5 bridge over North Portland Harbor, and the addition of a new HCT bridge from the Expo Center station. These new bridges crossing North Portland Harbor would be much more visible from North Portland Harbor than the existing bridge because of the greater width and height of the I-5 mainline bridge. From oblique views along the slough the bridges add more structure and would block more of the distant views along the slough. The current bridge

is minimally visible from distant spots along the slough but is increasingly dominant as the viewer approaches the bridge. The visual character and quality of the vicinity near the bridge would undergo high level changes due to the removal of docks, floating homes, other structures, and bands of shoreline vegetation. The addition of piers for the HCT bridge would clutter views along the slough and reduce views of open water.

**Exhibit 5-1. Simulation of New Bridge From
Floating Home Marina on Hayden Island**



The added lanes and greater width of I-5 over Hayden Island would primarily affect commercial and industrial buildings and parking areas adjacent to the existing alignment. These areas would not be considered sensitive public views. However, the loss of the open space between highway ramps on either the west (downstream) or east (upstream) side of I-5 would continue the trend of urban development of the island. The new I-5 configuration for the replacement alternatives on Hayden Island would likely not be visible from many locations. There would be sensitive views from the Red Lion Hotel, other commercial areas, and open space. The replacement alternatives would result in the removal of or impact to buildings in the Red Lion hotel complex, Pier 99, or the now-vacant Thunderbird Hotel complex to the west.

Exhibit 5-2. Simulation of New Highway and Transit Across Hayden Island



The replacement alternatives could have both negative and positive visual impacts for views and locations close to the bridge, depending on the type of structure that replaces the existing bridge structures. Removing the complicated truss structures and lift towers of the existing I-5 bridge would dramatically open up views from I-5. From both northbound and southbound directions on I-5, views of the Portland and Vancouver skylines would be visible, as would distant shorelines, rolling hills, and mountain profiles. Views toward and past the new bridge could also be more open with the elimination of the trusses and towers, which now dominate or are highly visible in many views from up and downstream. The same views could be substantially blocked, however, if the new structure is massive or solid. Reducing the number of piers, from ten piers for the existing bridge to five for the replacement alternatives, could open up views of open water from both shoreline-level and elevated viewpoints along the river.

The replacement option would be an improvement of views from the Waterfront Park area by moving the bridges farther away. A parking lot and existing road on the west side of I-5 would receive the impacts, neither of which contain sensitive viewers or be considered as high quality viewpoints. However, the future Columbia River waterfront development, just west of the Interstate, will include a hotel, commercial area, and residential units.

From distant views along the river, such as Kelley Point Park Panorama or Marine Drive, the bridge is noticeable primarily because of the complex trussing and variable arching, but the height and box-like framework of the lift towers boost its visibility. However, the bridge is a smaller part of the overall landscape from distant views and so does not hamper views of distant mountain profiles or landscapes to the same degree as from close viewpoints. To great extent visual quality impacts will depend on what the new bridge looks like. Because the replacement bridge must be high enough to allow ship passage it will be visible from most riverside locations. However, the visual impacts could tend to the positive because views through and past the bridge might not be hindered to the same degree as the existing bridge.

Compared to the standard Replacement design, the stacked transit/highway bridge option will take up less physical space and cause less shading, providing a more positive visualization of the river for people at river-level from all viewpoints. With the stacked transit/highway bridge, the two dissimilar bridge structures could appear busy or aesthetically incoherent, causing a long-term visual impact. To carry transit, the southbound bridge would be longer in depth than the northbound bridge. The southbound bridge would block more of the horizon and long-distance views, and the southbound bridge would cause more shading than the northbound bridge. Water or shoreline-level views looking North from the south would be affected more by stacked transit/highway bridge than by the standard replacement crossing because of the increased size of the southbound bridge.

Where transit separates from the primary structure at the transition piers with the stacked transit/highway bridge design option, transit would travel on a separate structure when traveling from the primary structure. The additional structure for transit could be a negative visual impact on both sides of the bridge. The transit structure may also block more water-level river views from Vancouver, Washington or from Hayden Island. However, this visual impairment will be less, or at a minimum, different than the standard replacement crossing with three bridges. In addition, users of the transit will not be able to have as good of a view of the river or of Mt. Hood while traveling inside the concrete box girder bridge. Compared to the replacement bridge, the tunnel effect of stacked transit/highway bridge could be a disincentive for sight-seers to take transit from Portland to Vancouver, or vice-versa.

Exhibit 5-3. Simulation of Stacked Highway/Transit Bridge Option



5.2.2.3 Vancouver Downtown and Residential Landscape Unit

Visual impacts from the replacement roadway bridge and the HCT alignment would be separate for this LU because the HCT path diverges from I-5 at the shoreline to travel

through downtown Vancouver. The effects of BRT would be nearly identical to LRT and would be localized in Vancouver, whereas the replacement alternatives alignments would only impact the highway corridor. For both alignments, the BRT is expected to have very short headways, meaning buses would come more frequently. Numerous and frequent BRT vehicles may have temporary but repetitive impacts.

The higher bridge deck would be as visible as the lift towers are now from cross streets along Sixth Street in lower Vancouver. The simulation in Exhibit 5-4 shows the elevated ramp south of Fifth Street in the distance.

Exhibit 5-4. Simulation of New Bridge Touch Down from Downtown Vancouver



The new SR 14 configuration would bring a much larger elevated ramp close to Vancouver, however, this interchange is already the dominant feature in most views in this area. The new or revised ramp system would continue the area's trend of becoming a denser, more intensely used highway corridor.

Exhibit 5-5. Simulated Aerial View of Possible SR 14 Interchange Design



Removing the lift towers would have a generally positive visual impact on views from downtown Vancouver. While the replacement bridges bring the north approach closer to downtown, the only views that would be moderately or highly impacted are those from west- or south-facing hotel or conference center rooms. The increased height and width of the replacement bridge would ensure that it remained a dominant feature in such views.

The SR 14 interchange revisions would result in the loss of landscaped edges along the highway between SR 14 and E McLoughlin Boulevard, which now serve to soften the edges and help create a more open quality. The visual character would remain unchanged (a major interstate highway facility), but the overall quality could be degraded by the loss of grass slopes, trees, or shrubs and by the construction of tall retaining or sound walls. However, the replacement bridge would open areas immediately under the bridge, providing more open views and areas from which to enjoy those views (Exhibit 5-6).

Exhibit 5-6. Simulation of Replacement Bridge and Transit Guideway Showing Open Shoreline Areas



A new ramp from SR 500 to I-5 would be slightly higher than the existing ramp; and would not result in any visual impacts. A tunnel option connecting the roads could have a positive impact by removing a ramp, creating a less visually complex interchange, and creating open space. Modifications to the Fourth Plain interchange would not noticeably increase heights or roadway footprint, and no visual impacts are expected.

The specific impacts of the stacked highway/transit bridge are similar in the landscape unit to the impacts identified above, for the Columbia River Landscape unit.

5.2.2.4 Greater Central Park Landscape Unit

With the exception of the Fort Vancouver National Historic Reserve, visual impacts in most of the Greater Central Park LU would be non-existent to low with the replacement alternatives, and there would be no impacts from an HCT option. Under the replacement alternatives the lift towers would be gone, therefore visual impacts could be positive.

The new bridge would be as tall as the top of the existing bridge's tallest arches, but there likely would not be the same degree of visual clutter since the new bridge would not be of steel through-truss construction. In addition, there would be fewer piers in the river. The replacement bridge could still block views of the profile of the distant hills to the southwest from ground-level viewpoints, but would not interfere with views from distant spots, such as Grand Boulevard to the east.

In the southwest corner of the Fort near the Village and the Fort Stockade, visual impacts would be high because of the new ramps for the reconfigured SR 14 interchange. The relocated westbound SR 14 to northbound I-5 ramp would encroach on the perimeter of buildings that frame the Village area. In addition, the southbound I-5 to eastbound SR 14 ramp could be prominent from the Village due to its height and proximity (Exhibit 5-7). The new ramps would be new and potentially highly visible. The potential incompatibility lies in the differences in scale, intended uses, and character between the ramp and Village.

Exhibit 5-7. Fort Village with New Ramps Simulated in the Background



The replacement bridge deck could block views of the distant horizon and the mountain profiles; however the visual impacts could be positive due to the removal of the highly visible lift towers.

From southbound I-5 at the Evergreen Street overpass the visual experience would change noticeably due to the removal of the towers, the addition of a tall new bridge, and widening of I-5 to accommodate the SR 14 interchange. The new river crossing and SR 14 ramps would be visible because they would be higher than the existing mainline and ramps, and could fill the immediate view with the rising north approach of the roadway. There is now no view of the opposite shore or horizons or indication that the Columbia River is ahead, other than the I-5 bridge. The replacement alternatives would likely maintain or worsen the quality of this scene and maintain the existing visual character.

The current alignment of I-5 is within a few feet of the historic Post Hospital. A wider roadway to accommodate the revised SR 14 and Mill Plain interchanges would bring I-5 closer to the hospital. While this is consistent with the current conditions and the trend of urbanization along a primary transportation corridor, the impact on views from and the experience of being inside the hospital (currently vacant) will be negative.

Bands of roadside vegetation, which now soften roadway edges and help create a more open visual quality, would be removed and the new approach and roadway could be hard-edged with retaining or noise walls. Views of the surroundings could be lost in this event. The visual character of the Evergreen Street to the SR 14 corridor could receive moderate to high impacts because the changes are substantial, although consistent with the existing visual character of a high volume highway.

5.2.2.5 Burnt Bridge Creek Landscape Unit

There would be no visual impacts from the replacement alternatives in the Burnt Bridge Creek Landscape LU. Visual impacts would result from the I-5 transit alignment. Visual impacts would be low level and would be due to the addition of HCT guideways and ramps along the east side of the highway. Landscaped edges along the highway that now soften the edges and help create a more open quality would be replaced with retaining or sound walls, and possibly the dedicated HCT guideway. This could change the visual character from that of a green suburban highway facility to an urban, walled facility. There are no residences adjacent to I-5 through this LU, therefore visual impacts to sensitive viewers are expected to be low.

5.2.3 Supplemental Crossing with HCT

The primary elements of this alternative that would affect visual quality and character are: new bridge, tolling structures, transit guideways, and stations. Impacts due to the supplemental crossing would be similar to but greater than those of the replacement crossing. The new bridge structures and ramps would have a greatly increased footprint and visual presence. Seismically reinforcing the existing I-5 bridge would add mass to the piers supporting the bridge and this would likely degrade both the visual character of the bridge and the quality of views from the shoreline along the river. Impacts from the I-5 transit alignment would be the same as for the replacement alternatives (see Section 5.2.2 for a description of expected visual impacts from transit options).

5.2.3.1 Columbia Slough Landscape Unit

In the Columbia Slough landscape unit the reconfiguration of the Marine Drive interchange ramps would not change the visual character of the area, nor would it noticeably change the visual quality. The new ramp from I-5 to Martin Luther King Jr. Boulevard would be several feet higher than the existing, which would make the ramp more visible than it is now from a few locations in Delta Park where there are views through the tree border. Similarly, the ramps may be somewhat more noticeable from a hotel due east of the interchange. However, since the footprint of the interchange would not increase, overall visual impact to those few views is likely to be low.

5.2.3.2 Columbia River Landscape Unit

In the Columbia River Landscape Unit, Hayden Island, North Portland Harbor, and the Columbia River would have high level visual impacts from widening and reconfiguring the North Portland Harbor bridge, similar to those of the replacement alternatives. The existing bridge structures are the largest structures in this landscape unit. The level of visual quality impacts will depend on what the new bridge looks like. The supplemental bridge must be high enough to allow ship passage because it would not have a lift span, so the bridge deck would be visible from most riverside locations.

The supplemental bridge would add visual complexity to the south approach on Hayden Island and would result in the removal of several buildings at the vacant Thunderbird complex. The bridge would be closer to residential units west of the bridge, possibly impacting views from this location. The added lanes over Hayden Island would primarily affect commercial and industrial areas, which are not considered sensitive views. However, losing a large piece of the only remaining open space on the east side of I-5 will continue the trend of heavy development of the island. The new Hayden Island I-5 configuration would likely not be visible from many locations and the only sensitive views would be from the Red Lion Hotel buildings and open space next to the highway.

Exhibit 5-8. Simulation of Supplemental Bridge



Adding piers for the new bridge and reinforcing those of the existing bridges would create greater obstruction of views of open water from both ground-level and elevated viewpoints along the river. The combined footprint would be comparable to that of the replacement structures, but the overall visual presence would be much greater because the supplemental bridge and ramps are likely to be very different from and higher than the existing bridge. This could result in high level negative visual impact if the old and new designs are not consistent or harmonious with each other.

From distant viewpoints along the river the existing I-5 bridge is noticeable primarily because of the complex trussing and variable arching, but the height and box-like framework of the lift towers contribute to the visibility. Because the bridge is a smaller

part of the overall landscape from distant views, it does not hamper views of distant mountain or hillside profiles or landscapes to the same degree as from close viewpoints.

5.2.3.3 Vancouver Downtown and Residential Landscape Unit

The supplemental alternatives would have visual impacts similar to but probably greater than the replacement alternative. The lift towers would continue to be visible from many locations and the new, higher bridge would make the combination even more visible. Views from east- or south-facing rooms of the Evergreen Retirement Inn or conference center could be moderately to highly impacted because of the greater width and increased height of the supplemental bridge. The degree of impact will depend on the design of the new bridge and its relationship with the existing I-5 bridge. Height and likely stylistic differences between the old and new bridges would add visual complexity that probably would be difficult to reconcile from an aesthetics standpoint. The profile of the combined bridges would effectively block a much wider band of shoreline-horizon than the replacement bridge, which would be at one uniform height.

5.2.3.4 Greater Central Park Landscape Unit

The supplemental alternatives would have visual impacts similar to but probably greater than the replacement alternatives. The degree of impact will depend on the design of the new bridge and its relationship with the existing I-5 bridge. Height and likely stylistic differences between the old and new bridges would add visual complexity that probably would be difficult to reconcile from an aesthetics standpoint. The profile of the combined bridges would effectively block a much wider band of shoreline-horizon than the replacement bridge, which would be at one uniform height. The bridges would be visible from the Fort and the new, higher bridge would be an additional element in those views. Views could be moderately to highly impacted because of the greater width and increased height of the supplemental bridge.

Adding piers for the new bridge and reinforcing those of the existing bridge would create more obstruction of views of open water from both ground-level and elevated viewpoints in this landscape unit. The combined footprint would be comparable to that of the replacement structures, but the overall visual presence would be much greater because the supplemental bridge and ramps are likely to be very different from and higher than the I-5 bridge. This could result in high level negative visual impact if the old and new designs are not consistent or harmonious with each other.

5.2.3.5 Burnt Bridge Creek Landscape Unit

There would be no visual impacts in the Burnt Bridge Creek LU from the supplemental alternative.

5.3 Impacts from Segment-level Options

This section describes and compares the impacts associated with specific highway, interchange, and transit alignments and options. They are organized by Segment (Exhibit 1-2):

- Highway Segment A: Delta Park to Mill Plain District (Columbia Slough, Columbia River, Vancouver Downtown-Residential, and Greater Central Park LUs)
- Highway Segment B: Mill Plain District to North Vancouver (Burnt Bridge Creek LU)
- Transit Sub-segment A1: Delta Park to South Vancouver (Columbia Slough and Columbia River LUs)
- Transit Sub-segment A2: South Vancouver to Mill Plain District Vancouver Downtown-Residential and Greater Central Park LUs)
- Transit Segment B: Mill Plain District to North Vancouver (Burnt Bridge Creek LU)

Impacts from highway options are described separately from impacts from transit options. The purpose of this organization is to present the information according to the choices to be made. Where the traffic and transit choices would have a substantial effect on each other, this is considered.

5.3.1 Segment A: Delta Park to Mill Plain District - Highway Alternatives

This section is a brief summary of the major points discussed in detail in Section 5.2. In practice the visual effects of the highway cannot be considered separately from transit impacts unless they are physically separated (as they are under the offset alignment for HCT). This section does treat the visual impacts as separate in order to facilitate understanding of what factors contribute to the impacts. There are four landscape units that fall primarily or entirely in Segment A: Columbia Slough, Columbia River, Vancouver Downtown-Residential, and Greater Central Park.

5.3.1.1 No-Build

There would be no CRC-related visual changes to the project area if the existing I-5 bridge remains in place. The existing bridge would continue to be a dominant feature in views near the crossing and visible from many places in Vancouver and Fort Vancouver National Historic Site. As development in the area continues to modernize or replace buildings and structures the bridge may be the sole remaining element from the era of steel bridge construction. This could be seen as a positive or negative attribute. As long as the bridge is maintained and painted, views containing the bridge should not decline in quality.

5.3.1.2 Replacement Crossing- Segment A

The replacement alternatives would change the visual quality of the Columbia River, North Portland, Greater Central Park, and Downtown Vancouver landscape units in Segment A. These changes would result from the greater height and width of the new bridge across the Columbia River, and the widened or higher ramps for reconfigured interchanges at Marine Drive, Hayden Island, SR 14, Mill Plain, and SR 500. These changes are discussed in detail in Section 5.2.2 and a bullet summary of the major visual affects is given here for each landscape unit.

5.3.1.2.1 Columbia Slough LU

Overall there would be low level visual impacts from the replacement alternatives. The main impact would be due to the new I-5 to Martin Luther King Jr. Boulevard ramp, which would be more visible than the existing ramp from a few locations in Delta Park and vicinity because it is higher than the existing ramp. The visual character and quality of the area would not noticeably change.

5.3.1.2.2 Columbia River LU

Overall there would be high level visual impacts in this LU, but the impacts could be primarily positive.

- North Portland Harbor impacts could be moderate and negative -
 - Removal of docks, floating homes, and other structures, and bands of shoreline vegetation.
 - Addition of columns for the HCT bridge would clutter views along the slough and reduce views of open water.
- Columbia River channel impacts could be high and mostly positive-
 - Removal of the complicated truss structures and lift towers of the existing I-5 bridge would dramatically open up views
 - from I-5 of Portland and Vancouver skylines, distant shorelines, rolling hills, and mountain profiles, and
 - toward I-5 of open water and shorelines from shoreline-level and elevated viewpoints.
- Impacts can be positive with a coherent, integrated bridge design that is sensitive to the context.
 - A stacked highway/transit bridge is a less integrated design, as the structures will be of different sizes.

Views that would be affected by the replacement alternatives include:

- Red Lion Hotel.
- Thunderbird Hotel complex.
- Joe's Crab Shack Restaurant and Vancouver Waterfront Park (a possible improvement)

5.3.1.2.3 Vancouver Downtown and Residential LU

There would be moderate level visual impacts to the Vancouver LU due to replacement alternatives including

- Removing the lift towers would have a generally positive visual impact on views from downtown Vancouver.

- Modifications to interchanges would not noticeably increase heights or roadway footprint, therefore no visual impacts are expected.
- Higher bridge deck would be as visible as the lift towers are now from cross streets along Sixth Street in lower Vancouver.
- New SR 14 configuration would bring a much larger elevated ramp close to Vancouver, but this is an interchange area now and the new ramp is consistent with the character of an intensely-used highway corridor.
- With the Main Street connection passing through the existing tunnel under the BNSF rail, the higher SR 14 ramp configuration may result in a positive visual and actual connection between Vancouver's southern city center/waterfront and the Fort Vancouver reserve/waterfront.
- With the stacked transit/highway bridge design option, transit would travel on a separate structure when traveling from the primary structure. The additional structure for transit could be a negative visual impact on both sides of the bridge. But this design includes an overall reduction in the prominence and shading of the structures.

Views affected:

- East or south-facing hotel or conference center rooms would be moderately or highly impacted for either alternative due to increased height and width of the replacement.
- Highway corridor views could decline due to loss of landscaped edges along the highway between SR 14 and E McLoughlin Boulevard due to widening I-5 for the SR 14 interchange.
- Waterfront Trail views could be improved because of the higher bridge.

5.3.1.2.4 Greater Central Park LU

With the exception of the Fort Vancouver National Historic Reserve, visual impacts in the Greater Central Park LU would range from non-existent to low from the replacement alternatives. Impacts to Fort Vancouver would be moderate to high.

- Lift towers would be gone, therefore visual impacts could be positive.
- Probably much less visual clutter with new I-5 bridge superstructure.
- High visual impacts in vicinity of Village due to new SR 14 interchange (ramp would encroach on the perimeter of the Village area; could be visually prominent from the Village; incompatible scales, uses, and character).
- I-5 would be closer to the Post Hospital in the West Barracks.
- With the Main Street connection passing through the existing tunnel under the BNSF rail, the higher SR 14 ramp configuration may result in a positive visual and actual connection between Vancouver's southern city center/waterfront and the Fort Vancouver reserve/waterfront.

Views affected:

- Highway corridor views could decline due to loss of roadside vegetation
- Changes would be consistent with visual character and uses of highway corridor.

5.3.1.3 Supplemental Crossing – Segment A

The supplemental alternatives would change the visual quality of the Columbia River, North Portland, Greater Central Park, and Downtown Vancouver landscape units in Segment A. These changes would result from the greater height and width of the new bridge across the Columbia River, and the widened or higher ramps for reconfigured interchanges at Marine Drive, Hayden Island, SR 14, Mill Plain, and SR 500. Visual impacts due to the supplemental crossing would be similar to but greater than those of the replacement alternatives. Seismic reinforcement of the existing I-5 bridge would add mass to the piers supporting the bridge and this would likely degrade not only the visual character of the bridge, but the visual quality of views from the shoreline along the river as well. These changes are discussed in detail in Section 5.2.2 and a bullet summary of the major visual affects is given here for each landscape unit.

5.3.1.3.1 Columbia Slough LU

Overall there would be low-level visual impacts from the supplemental alternative. The main impact would be due to the new I-5-to-Martin Luther King Jr. Boulevard ramp, which would be more visible than the existing ramp from a few locations in Delta Park and vicinity because it is higher than the existing ramp. However, the visual character and quality of the area would not noticeably change.

5.3.1.3.2 Columbia River LU

Overall there would be high-level visual impacts. Impacts in North Portland Harbor area would be moderate and negative, similar to those of the replacement alternative due to:

- Removal of docks, floating homes, other structures, and bands of shoreline vegetation, and
- Addition of piers for the HCT bridge, which would clutter views along the slough and reduce views of open water.

Impacts to the Columbia River channel could be high and mostly negative due to:

- Addition of piers for the new bridge and seismic reinforcement of the existing piers, which would create greater obstruction of views of open water from both ground-level and elevated viewpoints along the river.
- Combined footprint would be comparable to that of the replacement bridge.
- Overall visual presence likely to be much greater than that of the replacement bridge.
- New bridge and ramps are likely to be very different from and higher than the existing I-5 bridge.
- High level negative visual impacts could result if the old and new designs are not consistent or harmonious with each other.

Views that would be affected include

- Vacant Thunderbird Hotel property.
- South approach on Hayden Island.
- Residential units adjacent to the bridge.

5.3.1.3.3 Vancouver Downtown and Residential LU

The supplemental alternatives would have visual impacts similar in nature to but greater than the replacement alternatives.

- Higher bridge deck of supplemental structure would be very visible from cross streets along Sixth Street in lower Vancouver.
- The degree of impact will depend on the design of the new bridge and its relationship with the existing I-5 bridge. Height and likely stylistic differences between the old and new bridges would add visual complexity that could be difficult to reconcile.
- The profile of the combined bridges would effectively block a much wider band of shoreline-horizon than the replacement bridge, which would be at one uniform height.
- The supplemental alternatives design would require the HCT bridge to touch down just north of Sixth Street along Washington Street. The structure required for the landing would be massive, block and close Sixth Street, and block views across Washington Street.

Views affected:

- East or south-facing hotel or conference center rooms would be moderately or highly impacted for either alternative due to the increased height and width from adding the supplemental structure.
- Highway corridor views could decline due to loss of landscaped edges along the highway between SR 14 and E McLoughlin Boulevard from widening I-5 for the SR 14 interchange.

5.3.1.3.4 Greater Central Park LU

Visual impacts in the Greater Central Park LU would be similar to and possibly greater than those from the replacement alternatives.

- Degree of impact will depend on the design of the new bridge and its relationship with the existing I-5 bridge.
- Height and likely stylistic differences between the old and new bridges would add visual complexity that probably will be difficult to reconcile.
- Profile of the combined bridges would effectively block a much wider band of shoreline-horizon than the replacement bridge.

5.3.2 Segment B: Mill Plain District to North Vancouver - Highway Alternatives

The Burnt Bridge Creek Landscape Unit is fully contained in Segment B.

5.3.2.1 No-Build

There would be no visual changes to I-5 in Segment B under the No-Build Alternative.

5.3.2.2 I-5 Western Alignment (with I-5 Transit Alignment)

Moderate to high visual impacts would result in the Burnt Bridge Creek LU from the addition of guideways and overpasses for transit on the east side of I-5 and shifting the I-5 alignment to the west to accommodate new HCT structures. These actions would bring the walls and highway closer to the residences along the west side and would build guideways and ramps very close to the residences and parks along the east side. This would have a negative impact on the character and quality of the yards adjacent to the corridor by removing greenery and placing retaining or sound walls closer to the yards.

Adding the guideway would result in the loss or removal of vegetation and open space, which often acts as a visual buffer for the homes next to the highway. This alignment would also bring the guideway very close to the backyards of homes between the Fourth Plain and SR 500 interchanges. Both the shift westward of the alignment and the new HCT guideway would result in the loss of landscaped edges along the highway and the buffer landscapes between the highway and residences and parks along the highway. Loss of landscaping inside the roadway, which now serves to soften the edges and help create a more open quality, and the addition of walls would reduce the visual quality of the roadway from a motorist's viewpoint.

Placing the HCT guideway along the east side of I-5 introduces a visual element that would be highly visible from communities and activity centers east of I-5. At interchanges the guideway will rise over the access ramps and be highly visible from more distant viewpoints. The total effect of the visual changes will depend on the context and design of the new facilities. A new ramp from SR 500 to I-5 would be only slightly higher than the existing ramp, therefore would not result in any visual impacts as seen from the park to the north of the interchange. The tunnel option could have a positive impact by removing a ramp from sight and thereby creating more open space and a simpler interchange.

5.3.2.3 I-5 Current Alignment (with Vancouver Transit Alignment)

Widening I-5 on both sides would result in visual impacts similar to those described for the Western alignment. Primarily this is the loss of landscaped edges along the highway that now serve to soften the edges and help create a more open quality. The visual character would remain unchanged (i.e., a major interstate highway facility), but the overall quality could be degraded by the loss of vegetation and the construction of tall retaining or taller sound walls. Most of the properties affected are residential and the widening would bring the roadway close to residences, creating a moderate level of visual impact.

A new ramp from SR 500 to I-5 would be only slightly higher than the existing ramp and therefore would not result in any visual impacts. A tunnel option connecting the roads could have a positive impact by removing a ramp, creating a visually simple interchange, and creating more open space.

5.3.3 Segment A1: Delta Park to South Vancouver - Transit Alternatives

5.3.3.1 Hayden Island I-5 Adjacent Transit Alignment

Visual impacts would be similar for both the LRT and BRT high-capacity transit options. Therefore impacts are discussed here as HCT impacts. The primary difference would be that the BRT option would build a bus transfer facility at the existing Expo MAX station.

Placing the HCT guideway adjacent to I-5 would increase the visual effects that result from the new I-5 mainline and auxiliary lanes on Hayden Island. The combined footprint would be wider because of the guideway. Additional bridge piers at the north and south sides of the island where the guideways transition to bridge would increase the visual impact from ground level and longer distance views. An elevated station could be highly noticeable, but the increased visibility is not necessarily a drawback and could improve way-finding for transit users trying to find the station.

This option would also slightly increase the negative visual impacts of the expanded I-5 mainline in North Portland. The added guideway structures and bus transfer station (with BRT) at the Expo Center in the Columbia Slough LU would be consistent with the scale and uses of the Expo Center. With the BRT option, the addition of a bus transfer facility at the northeast corner of the Expo Center would not be a visual impact because the area is an existing transit station and no sensitive views would be blocked. The addition of a guideway would be consistent with the existing visual character and quality. However, the new guideway bridge crossing North Portland Harbor would be a new feature and would compound the visual impacts due to the expanded I-5 mainline bridge. The HCT bridge would pass near remaining private docks and floating homes and would result in shade and visual impacts to the docks and homes near the new bridge.

5.3.3.2 Hayden Island Offset Transit Alignment

Visual impacts resulting from this alignment would be identical for both the LRT and BRT high-capacity transit options. Therefore impacts are discussed here as HCT impacts.

The offset alignment, in adding a new elevated guideway and bridge to Hayden Island where there currently are none, could have slightly greater visual impacts than the I-5 adjacent alignment because these structures would be separated from the highway. The elevated station could be highly noticeable but, as with the adjacent option, the increased visibility could improve way-finding for transit users trying to find the station. Additional piers where the HCT guideways transition to the bridge would increase the visual impact from ground-level and longer distance views. The new guideway bridge crossing North Portland Harbor would be a new feature and would compound the visual impacts from the expanded I-5 mainline bridge over the slough. The HCT bridge would pass near

remaining private docks and floating homes and would result in shade and visual impacts to the docks and boats near the new bridge.

The added guideway structures and transit station at the Expo Center would be consistent with the scale and uses of the Expo Center. No visual impacts are anticipated here.

5.3.4 Segment A2: South Vancouver to Mill Plain District - Transit Alternatives

5.3.4.1 HCT Two-Way on Washington Street

Visual impacts to Washington Street due to the installation of transit facilities are expected to be low. The transit vehicles would run in the median right-of-way and the necessary striping or tracks, rumble strips or curbs, and advisory signage would not produce a large change nor introduce incompatible structures and furnishings into the streetscape. The stations between Sixth and Seventh Streets and 11th and 12th Streets would be at-grade, and likely consist of a single platform in the center of guideway. The platform and its associated furnishings such as shelters, benches, paving, and signage could be designed to be compatible with the surroundings and protect sight-lines and views that now exist. The context of two historic buildings, the Greeley Building at Evergreen Boulevard (housing the Koplans Furniture Store) and the St. James Church (between 12th and 13th Streets), could be affected by the presence of the nearby stations if the latter block views or noticeably alter the character of the surroundings. The movement and presence of the transit vehicles would not create permanent visual conflicts or changes and are therefore not expected to create visual impacts.

The station between 15th and 16th Streets would be a transit center with nine bus bays for transfer connections. This larger station would replace a parking lot just west of the Carnegie Library, a historic building and the County Historic Museum. Visual impacts would be determined by the character of the new transit center including scale, materials, and landscape and the degree to which sight-lines and the quality of views is protected.

5.3.4.2 HCT Couplet on Broadway/Washington

The impacts for this alignment are roughly similar to those for the two-way Washington option. However, along Broadway the sensitive buildings are different. The recently restored Old Columbian and Ice King Buildings at Broadway and Evergreen could be affected by the presence of the alignments.

5.3.5 Segment B: Mill Plain District to North Vancouver - Transit Alternatives

5.3.5.1 Vancouver Transit Alignments

Visual impacts resulting from this option would be identical for both the LRT and BRT high-capacity transit options; therefore impacts are grouped as HCT impacts. In addition, visual impacts for the Broadway two-way and the Main/Broadway couplet would be similar in character and are discussed as one option here. Efficient and Increased transit operations would have no visual impacts and are therefore not included in the following discussion.

Visual impacts to streets for these alignments would be similar to those for Segment A1 where the guideway is included in the street right-of-way. Changes to the character and quality of Main and Broadway Streets due to the installation of transit facilities are expected to be low level. The transit vehicles would run on one side of the street and the necessary striping or tracks, rumble strips, and advisory signage would not produce a large change nor would they introduce incompatible structures and furnishings into the streetscape. The visual character of Main Street (north of 29th Street) could change noticeably by being widened from 80 feet to 100 feet to accommodate the center guideway path and additional lanes for general purpose traffic. Street trees are intermittent along this stretch of road, but several mature specimens may have to be removed for the widening.

The stations at 24th and 33rd Streets would be at-grade, likely single platform stations on one side of the street. The platform and its associated furnishings such as shelters, benches, paving, and signage could be designed to be compatible with the surroundings. The movement and presence of the transit vehicles would not create permanent visual conflicts or changes and are therefore not expected to be a visual impact.

The terminus station at the Lincoln Park and Ride would be located off-street within the park and ride site. The park and ride site is currently a maintenance building complex surrounded by asphalt parking. The site is bounded by residential single-family homes to the south and north, parks to the west and northeast, and large complexes with large footprint buildings to the north and east. The park and ride structure would be mostly underground, with up to two sub-surface levels and one at-surface parking level. The park and ride would be clearly visible from the residential units, but could be landscaped to screen it if desired.

5.3.5.2 North I-5 Transit Alignments

Visual impacts resulting from this option would be identical for both the LRT and BRT high-capacity transit options therefore impacts are grouped here as HCT impacts. Efficient and Increased transit operations would have no visual impacts and are therefore not included in the following discussion.

Visual impacts to streets for these alignments would be similar to those in Segment A1 where the guideway is included in the street right-of-way. Changes to the character and quality of 16th Street due to the installation of transit facilities are expected to be low level. The visual character of McLoughlin Boulevard, on the other hand, could change noticeably by being widened from 80 to 100 feet to accommodate the center guideway and additional lanes for general purpose traffic. The necessary striping or tracks, rumble strips, and advisory signage would not produce a large change or introduce incompatible structures and furnishings into the streetscape.

Placing the HCT guideway along the east side of I-5 would have low visibility south of 39th Street because it would be below the grade of surrounding neighborhoods. The HCT guideway would pass under Fourth Plain, East 29th and East 33rd, before climbing at the north end to cross over SR 500 and East 39th Street. The HCT ramp over E 39th Street would introduce a visual element that would be highly visible from communities and

activity centers in this area and would compound the visual impact from the new SR 500 to I-5 ramp. The combination of both new ramps likely could completely block the view of the forested hillside beyond.

The total effect of the visual changes will depend on the context and design of the new facilities. Adding the guideway would result in the loss or removal of vegetation and open space adjacent to the highway, which often acts as a visual buffer for homes next to the highway. This alignment would bring the guideway very close to the backyards of homes between the Fourth Plain and SR 500 interchanges.

The stations at Arnada, Clark College Park and Ride, 33rd Street, and Kiggins Bowl Park and Ride would be at-grade, single platforms. Platforms and associated furnishings such as shelters, benches, paving, and signage could be designed to be compatible with the surroundings. Movement and presence of the transit vehicles would not create permanent visual conflicts or changes and are therefore not expected to be a visual impact.

The Clark College Park and Ride would replace a small landscaped park and parking area with a three-level parking structure. This would likely be visible from the sports fields just east of the proposed park and ride site, but would not be inconsistent with the large-footprint, mid-rise buildings of the campus.

The Kiggins Bowl Park and Ride would replace a landscaped parking area with a six-level parking structure. The existing lot is immediately north of the Kiggins Bowl open space/sport field. The scale of the parking structure would be inconsistent with the surroundings, which consist of open space and sports fields to the south and east, and a mixture of residential and small-scale commercial/industrial to the west. It would be visible to viewers at these locations, but given the mixed nature of the areas activities, the visual impacts are likely to be considered low level.

To reach the Kiggins Bowl Park and Ride, the guideway would rise over I-5 on an elevated ramp, which would be partially visible from Leverich Park and highly visible to motorists on I-5. The visual impact may be moderate because the highway already has many overpasses through the Vancouver area.

5.4 Impacts from Other Project Elements

5.4.1 Minimum Operable Segments

With the Clark College Minimum Operable Segment (MOS), visual impacts to the highway and residences north of the Clark College Park and Ride would be avoided. For the Mill Plain MOS, visual impacts north of the terminal park and ride would be avoided. The Clark College, Kiggins Bowl, and a reduced size Lincoln Park and Ride would all be included with the Mill Plain MOS. Like the Clark College MOS, the Mill Plain MOS would not require the reconfiguration of the intersection at 45th and Main Street, thereby avoiding some impacts. The Mill Plain MOS could also require additional park and rides at 5th and Columbia Streets and 16th and Main Streets. Surface parking lots in these locations may be inconsistent with the increasingly urbanized environment in downtown Vancouver. Parking structures, especially if well integrated with mixed use buildings

would be consistent with the increasingly urban form of the downtown. The Clark College MOS would avoid the visual intrusion of the elevated guideway overpass ramps at SR 500 and I-5 (to reach the Kiggins Bowl Park and Ride) and the loss of the roadside landscaping and buffer landscapes between the highway and homes or parks

5.4.2 Transit Maintenance Base Options

Major expansion of an HCT system in Vancouver would require greater maintenance facility capacity. The BRT option would require expanding C-TRAN's maintenance facility in Vancouver. The LRT option would likely entail expanding TriMet's light rail maintenance facility in Gresham.

5.4.2.1 LRT Maintenance Base Options

TriMet plans to expand the Ruby Junction maintenance facility to better serve current demand as well as the increased maintenance required by both the possible Milwaukie and CRC light rail extensions. Expanding the existing Ruby Junction maintenance base would be consistent with the surroundings. There are a number of small single-family homes nearby surrounded by a mix of undeveloped tracts and industrial two-story box buildings with parking lots. The existing maintenance facility has the character of a rail yard and is not landscaped. Visual impacts resulting from an expansion are expected to be low because the added structures and uses are consistent with existing character and uses.

5.4.2.2 BRT Maintenance Base Options

The expansion of the C-TRAN facility could have a greater visual impact on its area. The maintenance base is now the dominant use in its block, but a portion of the parking lot is landscaped and the building has a small footprint relative to the total parking area. The facility is next to large landscaped yards or fields within an older agricultural landscape. The visual character of this area is a mix of open space and field, and parking. Visual impacts could be moderate to high because of the loss of the fields, landscaping and the increase in pavement and vehicle storage.

5.5 Impacts from System-Level Choices

5.5.1 River Crossing Type and Capacity: How does the supplemental crossing compare to the replacement crossing?

The supplemental crossing would have greater visual impacts than the replacement crossing and the impacts would be negative. Visual quality would be reduced for the supplemental crossing due to seismic reinforcement of the existing bridge structures and the fact that bridges at two different heights would block more of the horizon and long-distance views.

Both the replacement and supplemental alternatives would increase the prominence of the river crossing from all views, with the prominence increasing with closeness to the bridge. Water- or shoreline-level views would be affected more by the supplemental than the replacement crossing because not all of the existing piers would line up with the piers

for the new bridge, which would add together to block more water-level river channel views. Reinforcement of the existing bridge with piles and pilecaps would add many massive new elements to the bridge, which will decrease its aesthetic quality and the quality of views of the river and shorelines. Higher impacts could result from diminished views of open water and shorelines, obstructed long-distance views of the horizon, mountain profiles, or Mount Hood.

Additional negative impacts could arise from the difference in bridge styles if the new bridge is inconsistent or unharmonious with the existing I-5 bridge. Visual quality could suffer if the new Supplemental bridge does not complement the existing bridge, because the compound view of two dissimilar bridge structures could appear busy or aesthetically incoherent from any viewpoint. To a much lesser extent this incoherency may also occur with the stacked highway/transit bridge, which would have two differently sized structures.

Both crossing alternatives would increase shadow duration or extent. Increased light and glare from vehicles would result by virtue of the fact that vehicles are distributed over a greater surface over the river. A new source of glare could result if the new bridge structures include surfaces with smooth or mirror-like surfaces, such as toll stations and signs.

5.5.2 Transit Mode: How does BRT compare to LRT?

Visual quality and character impacts would be similar for BRT and LRT. While the BRT bridge could be a few feet narrower than the LRT bridge over the Columbia River, either transit bridge would be part of a new river crossing structure so this small difference would likely not be noticeable. The North Portland Harbor transit bridge would not be attached to the highway bridge, but it would still be difficult to tell the difference between the BRT and LRT widths.

Stations for BRT and LRT would be similar in style and scale, therefore differences between visual impacts are negligible. Views in the immediate vicinity of new transit stations would change because the transit vehicles must stop for short durations, adding a new dynamic quality to blocks with stations. With LRT the overhead wire system would add to visual complexity. However, in urban environments it is typically a low visual impact. The transit vehicles would not impact most views because they would not be permanent parts of any view other than at or near maintenance facilities.

Changes in bus routes would not produce any visual effects. Expansion or construction of maintenance facilities could have visual impacts, depending on the surroundings.

5.5.3 Balance of Transit vs. Highway Investment: Increased Transit System Operations with Aggressive TDM/TSM Measures, and Efficient Transit System Operations with Efficient TDM/TSM Measures

Most of these measures do not involve structures and would not affect the visual character or quality of the highway or its related facilities. However, variable message signs on I-5 or at park and rides would add to existing overhead signage and are large enough to dominate views in the immediate vicinity.

5.5.4 Major Transit Alignment: How do the Vancouver alignments compare to the I-5 alignments?

These alignments affect different landscapes and viewer groups. The Vancouver alignments would affect an urban-residential neighborhood oriented towards Main Street, while the I-5 alignments would affect commercial/industrial, recreation, and residential neighborhoods along but oriented away from I-5.

The widening of a portion of Main Street would affect businesses, a school, and residences facing that stretch of roadway. Widening to accommodate the transit lanes or tracks could require removal of buildings, street trees, and landscaping, and the addition of transit stations with their appurtenances. The greater width through this area and the addition of stations would be contained within this transportation corridor, and views in general would not be greatly changed either in character or quality.

The I-5 alignment options could have a greater impact than the Vancouver alignment options (without the general I-5 widening) due to the addition of transit lanes, stations, and ramp overpasses in close proximity to parks and backyards of homes. In addition, shifting the roadway west would at a minimum bring the roadway closer to residences and would remove buildings and vegetation. The number of residences affected would be similar to those affected by the Vancouver alignment, but the impacts would affect views from backyards of homes.

5.5.5 Tolling: How do the tolling options compare (no toll, standard or higher toll on I-5, toll on both I-5 and I-205)?

The tolling appurtenances are designed with very minimal visual presence. There is no appreciable difference in impacts on visual resources between tolling alternatives. The major difference is between the no toll and tolling options, because the tolling option will add overhead sign bridges with advisory information and electronic tracking equipment. The “no toll” option would not include these features.

6. Temporary Effects

6.1 Introduction

Temporary effects on visual quality and aesthetics would result from construction-related activities and would be common to all build alternatives to varying degrees.

6.2 Regional and System-wide Impacts

6.2.1 Impacts Common to All Alternatives

During construction, views both of and from the project area may be altered. Construction-related signage and heavy equipment would be visible at and in the vicinity of construction sites. Vegetation may be removed from some areas to accommodate construction of the bridges, new ramps, and transit guideway. This would degrade or partially obstruct view or vistas temporarily and could result in long-term changes if the vegetation is not replaced. Short-term changes to the visual character of areas adjacent to the alignment could result from:

- Construction vehicles and equipment.
- Clearing and grading activities resulting in exposed soils until replanting or repaving occurs.
- Erosion control devices such as silt fences, plastic ground cover, and straw bales.
- Dust, exhaust, and airborne debris in areas of active construction.
- Stockpiling of excavated material.
- Staging areas used for storage of equipment and materials.
- Disruption to the navigation corridor.
- Overhead gantries and scaffolding to support elevated structures such as stanchions or ramps.

Impacts would be greatest in areas where new structures are being built.

To minimize disruption to daytime traffic, temporary lighting may be necessary for nighttime construction of certain project elements. This temporary lighting could affect residential areas by exposing residents to glare from unshielded light sources or by increasing ambient nighttime light levels.

6.2.2 Impacts Unique to Transit Alternatives and Options

Construction of the LRT guideways would require more time than the street improvements necessary for BRT lanes. Consequently, temporary impacts would be worse for the LRT option because they would last longer. Effects from construction of the LRT guideways would be similar to those listed in Section 6.2.1.

6.2.3 Impacts Unique to Highway Alternatives and Options

No temporary effects are expected that would be unique to individual highway alternatives and options.

6.3 Segment A: Delta Park to Mill Plain District

In addition to the temporary impacts described in Section 6.2.1, impacts from bridge construction would be experienced in Segment A. Visual impacts would arise from floating barges and equipment in the Columbia River that serve as work platforms. Small watercraft will deliver materials and workers to work sites. These activities would be common to any of the crossing alternatives and have a highly negative impact on the quality of views of the river and shoreline. However, the alternatives differ considerably in how long the construction, and therefore the temporary impacts, would last.

The replacement crossing would have the least visual impact because it could be built fastest. The replacement crossing would have high visual impacts because the new crossing would be built parallel to the existing I-5 bridge. For the duration of construction, quality of scenic views would be severely degraded by having both the new and the existing bridges in place at the same time.

6.4 Segment B: Mill Plain District to North Vancouver

Temporary impacts in this segment consist of those common to all alternatives, described above.

7. Mitigation for Long-Term Effects

7.1 Introduction

Excellent design and high quality construction are important mitigation tools for visual quality and aesthetics. The I-5 bridge, regardless of which alternative is chosen, is a significant and prominent feature in the Columbia River landscape. Oregon and Washington have an equal stake in the visual quality of this very important gateway. For areas away from the bridge crossing, civic planning and architectural/landscape design are important mitigation tools for blending appropriately into the receiving communities.

Preliminary mitigation concepts presented here address potential impacts arising from construction and operation of the CRC project. These mitigation concepts were developed through the analysis conducted for the EIS and by integrating information among the EIS disciplines.

7.2 Mitigation Common to All Build Alternatives

Potential mitigation common to all alternatives includes:

- Replanting vegetation, street trees, and landscaping for screening or visual quality;
- Minimizing visual impacts to historic and cultural resources, public parks, and open spaces;
- Shielding station and facility lighting;
- Minimizing structural bulk, such as for ramps and columns; and
- Designing architectural features to blend with the surrounding community context.

7.3 Highway Mitigation in Segment A: Delta Park to Mill Plain District

The States of Oregon and Washington and the Cities of Portland and Vancouver will continue to discuss with other stakeholders the aesthetic attributes of the bridge, so as to best mitigate potential impacts and to create a noteworthy visual feature. To this end, design guidelines will be developed by coordinating with existing design goals to reflect and respect these assets:

- Unique characteristics of the land and water forms in the project area;
- Variety of scales over which the bridge will be experienced, ranging from aerial (two airports nearby) to pedestrian;
- Wealth of historic resources affected by the project; and
- Livability of the cities affected by the project.

The design of the I-5 bridge is perhaps the single greatest visual mitigation opportunity for the project. For example, an extradosed cable-stay bridge would have shorter towers (than a conventional cable-stay bridge) that may present less visual clutter for skyline or horizon views while maintaining the drama (vividness) that large-span bridges add to views.

Equally important is the experience of being able to walk, bicycle, or boat under the bridge. There is great mitigation and community enhancement potential to be derived from designing this space, with the community, to be a unique and impressive public amenity.

Other areas that may serve as mitigation opportunities are highway interchanges and community thresholds. Highway interchanges may be landscaped as “Community Enhancement Areas” (WSDOT 2004b), which are more formal and decorative than typical roadway revegetation or screening areas, to serve as thresholds and statements of community character. It is common to design special railings, lighting fixtures, or other simple structures for overcrossings that relate to the interchange landscape. Community thresholds are usually associated with interchanges and can be landscaped as “gateways”. Gateways should be designed with input from the affected communities and should reference any community aesthetic guidelines. Gateways and interchanges for mitigation include Mill Plain, Evergreen, and McLoughlin. The Central Park Plan, currently in a draft from awaiting adoption by the City Council, provides guidance on streetscape treatments and gateways, and should be followed for the design of mitigations in that neighborhood.

7.4 Highway Mitigation in Segment B: Mill Plain District to North Vancouver

Potential mitigation specific to this segment includes:

- Replanting vegetation, street trees, and landscaping for screening or visual quality;
- Minimizing visual impacts to historic and cultural resources, public parks and open spaces;
- Shielding station and facility lighting;
- Minimizing structural bulk; and
- Coordinating with existing urban or community design guidelines.

Segment B also has areas that may serve as mitigation opportunities are highway interchanges and community thresholds. Highway interchanges may be landscaped as “Community Enhancement Areas” (WSDOT 2004b), which are more formal and decorative than typical roadway revegetation or screening areas to serve as thresholds and statements of community character. It is common to design special railings, lighting fixtures, or other simple structures for overcrossings that relate to the interchange landscape. Community thresholds are usually associated with interchanges and can be landscaped as “gateways”. Gateways should be designed with input from the affected

communities and should reference any existing community aesthetic guidelines. Gateways and interchanges for mitigation include Mill Plain, Evergreen, and McLoughlin Boulevards in the Central Park neighborhood.

7.5 Transit Mitigation

Mitigation specific to transit facilities is common to all alternatives. Additional mitigation may be necessary where the high-capacity transit bridge touches ground in Vancouver. The landing would require a very large, solid footing that will occupy an entire block of Washington Street.

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8. Mitigation for Temporary Effects

8.1 Introduction

Temporary effects on visual quality and aesthetics would result from construction and construction-related activities and would be common to all build alternatives to varying degrees.

8.2 Mitigation Common to All Build Alternatives

During construction, views of and from the project area will be greatly altered. To protect neighborhoods and view quality the primary mitigation measures for temporary construction-related effects include:

- Shielding construction site lighting to reduce spillover light onto nearby residences and businesses.
- Minimizing visual obtrusiveness by locating construction equipment and stockpiling materials in less visually sensitive areas, when feasible, and in areas not visible from the road or to residents and businesses.

Even though scenic quality of the river would be impacted, the construction of the river crossing is likely to be of great interest to most people. An additional mitigation measure would be to provide public areas for observing the construction and demolition processes, using it as an opportunity for public education.

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9. Permits and Approvals

9.1 Federal

No federal permits will be required. However, coordination with the National Parks Service regarding the Fort Vancouver National Historic Reserve will be necessary if visual impacts alter the context of the historic landscape and buildings.

9.2 State

No state permits will be required. However, coordination with the State Historic Preservation Officer (SHPO) at the Department of Archaeology and Historic Properties will be required regarding visual impacts to the historic landscape and buildings at the Fort Vancouver National Historic Reserve.

9.3 Local

No local permits are necessary. The Cities of Portland and Vancouver have design review functions, which are addressed in the Land Use Technical Report.

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APPENDIX A

View Point Evaluation

Columbia River Crossing

VIEWS TO THE ROADWAY

May 2007

Prepared by: Derek Chisholm

Viewpoint		16_Fort Vancouver				11_Evergreen Overp SB				26_Arnada Park				29_26th to 4th Plain Ove				30_Grand Blvd				23_Lotus Isle Park				28_Columbia & 33rd							
		VIEW NUMBER (E=existing, P=proposed) Alternative (d=downstream, u=up, s=supplemental)				16	16	16	16	11	11	11	11	26	26	26	26	29	29	29	29	30	30	30	30	23	23	23	23	28	28	28	28
		E	P	P	P	E	D	U	S	E	D	U	S	E	D	U	S	E	D	U	S	E	D	U	S	E	D	U	S	E	D	U	S
VIVIDNESS	Foreground	LAND	1	1	1	1	2	1	1	1	2	2	2	2	2	2	2	2	2	5	5	5	5	1	1	1	1	2	2	2	2		
		WATER	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
		VEGETATION	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	2	2	2	2	4	4	4	4	
		MAN-MADE	7	7	7	7	5	6	6	6	3	3	3	3	1	1	1	1	1	3	3	3	3	1	1	1	1	3	3	3	3		
	AVERAGE	2.50	2.50	2.50	2.50	2.25	2.25	2.25	2.25	2.00	2.00	2.00	2.00	1.50	1.50	1.50	1.50	3.00	3.00	3.00	3.00	1.25	1.25	1.25	1.25	2.50	2.50	2.50	1.00				
	Middle ground	LAND	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	1	1	1			
		WATER	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
		VEGETATION	1	1	1	1	2	1	1	1	3	3	3	3	2	2	2	2	2	3	3	3	3	1	1	1	1	4	4	4	4		
		MAN-MADE	1	1	1	1	3	4	5	4	1	1	1	1	2	2	2	2	2	4	4	4	4	3	3	3	3	2	2	2	2		
	AVERAGE	1.00	1.00	1.00	1.00	1.75	1.75	2.00	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	2.50	2.50	2.50	2.50	1.50	1.50	1.50	1.50	2.00	2.00	2.00	2.00				
	Background	LAND	2	2	2	2	1	1	1	1	1	1	1	1	2	2	2	2	4	4	4	4	4	3	3	3	3	3	3	3			
		WATER	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
VEGETATION		2	2	2	2	3	3	3	3	1	1	1	1	2	2	2	2	4	4	4	4	3	3	3	3	1	1	1	1				
MAN-MADE		5	4	4	5	5	5	4	5	1	1	1	1	4	4	4	4	3	3	3	3	3	3	3	3	5	5	5	5				
AVERAGE	2.50	2.25	2.25	2.50	2.50	2.50	1.00	2.50	1.00	1.00	1.00	1.00	2.25	2.25	2.25	2.25	3.00	3.00	3.00	3.00	2.75	2.50	2.50	2.50	2.50	2.50	2.50	2.50					
INTACTNESS	Foreground	MAN MADE	7	7	7	7	2	1	1	1	6	6	6	6	5	5	5	5	5	5	5	5	6	6	6	6	4	4	4	4			
		NATURAL ENVIRONMENT	7	7	7	7	2	1	1	1	6	6	6	6	5	5	5	5	5	5	5	5	6	6	6	6	4	4	4	4			
		AVERAGE	7.00	7.00	7.00	7.00	2.00	1.00	1.00	1.00	6.00	6.00	6.00	6.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	6.00	6.00	6.00	6.00	4.00	4.00	4.00	4.00			
	Middle ground	MAN MADE	1	1	1	1	3	4	2	3	6	6	6	6	5	5	5	5	4	4	4	4	4	4	4	4	5	5	5	5			
		NATURAL ENVIRONMENT	1	1	1	1	3	4	2	3	6	6	6	6	5	5	5	5	4	4	4	4	2	2	2	2	5	5	5	5			
		AVERAGE	1.00	1.00	1.00	1.00	3.00	4.00	2.00	3.00	6.00	6.00	6.00	6.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00	3.00	3.00	3.00	3.00	5.00	5.00	5.00	5.00			
	Background	MAN MADE	2	2	2	2	4	4	3	3	4	4	4	4	2	2	2	2	5	5	5	5	4	4	4	4	2	2	2	2			
		NATURAL ENVIRONMENT	6	6	6	6	4	4	3	3	4	4	4	4	2	2	2	2	5	5	5	5	3	3	3	3	4	4	4	4			
		AVERAGE	4.00	4.00	4.00	4.00	4.00	4.00	3.00	3.00	4.00	4.00	4.00	4.00	2.00	2.00	2.00	2.00	5.00	5.00	5.00	5.00	3.50	3.50	3.50	3.50	3.00	3.00	3.00	3.00			
	UNITY	Foreground	MAN-MADE	7	7	7	7	6	6	6	6	6	6	6	6	2	2	2	2	2	2	2	2	4	4	4	4	5	5	5	5		
			OVERALL	7	7	7	7	6	6	6	6	6	6	6	6	2	2	2	2	2	2	2	2	4	4	4	4	5	5	5	5		
			AVERAGE	7.00	7.00	7.00	7.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	4.00	4.00	4.00	4.00	5.00	5.00	5.00	5.00		
Middle ground		MAN-MADE	1	1	1	1	3	3	4	3	4	4	4	4	2	2	2	2	4	4	4	4	5	5	5	5	4	4	4	4			
		OVERALL	1	1	1	1	3	3	4	3	4	4	4	4	2	2	2	2	4	4	4	4	5	5	5	5	4	4	4	4			
		AVERAGE	1.00	1.00	1.00	1.00	3.00	3.00	4.00	3.00	4.00	4.00	4.00	4.00	2.00	2.00	2.00	2.00	4.00	4.00	4.00	4.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00			
Background	MAN-MADE	3	4	4	3	5	2	5	3	3	3	3	3	3	3	3	3	3	4	4	3	3	3	3	3	5	3	3	5				
	OVERALL	2	4	4	2	5	2	5	3	3	3	3	3	3	3	3	3	3	4	4	3	3	3	3	5	3	3	5					
	AVERAGE	2.50	4.00	4.00	2.50	5.00	2.00	5.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	4.00	4.00	3.00	3.00	3.00	3.00	5.00	3.00	3.00	5.00					
AVERAGES		Foreground	5.50	5.50	5.50	5.50	3.42	3.08	3.08	3.08	4.67	4.67	4.67	4.67	2.83	2.83	2.83	2.83	3.33	3.33	3.33	3.33	3.75	3.75	3.75	3.75	3.83	3.83	3.83	3.33			
		Middleground	1.00	1.00	1.00	1.00	2.58	2.92	2.67	2.58	3.92	3.92	3.92	3.92	2.92	2.92	2.92	2.92	3.50	3.50	3.50	3.50	3.17	3.17	3.17	3.17	3.67	3.67	3.67	3.67			
		Background	3.00	3.42	3.42	3.00	3.83	2.83	3.00	2.83	2.67	2.67	2.67	2.67	2.42	2.42	2.42	2.42	3.67	4.00	4.00	3.67	3.08	3.00	3.00	3.00	3.50	2.83	2.83	3.50			
TOTAL VISUAL QUALITY			3.17	3.31	3.31	3.17	3.28	2.94	2.92	2.83	3.75	3.75	3.75	3.75	2.72	2.72	2.72	2.72	3.50	3.61	3.61	3.50	3.33	3.31	3.31	3.31	3.67	3.44	3.44	3.50			

Evaluation Scale
 7 = VERY HIGH
 6 = HIGH
 5 = MODERATELY HIGH
 4 = AVERAGE
 3 = MODERATELY LOW
 2 = LOW
 1 = VERY LOW TO NON-EXISTENT

Columbia River Crossing

VIEWS TO THE ROADWAY

May 2007

Prepared by: Derek Chisholm

Viewpoint		13_Port of Van: Term 1				18_Hwy 14: Columbia W				12_Columbia and 6th				15_Hwy 14: Land Bridge				32_Main St and 6th				24_Blue Frog Landing				25_Delta Park							
		13	13	13	13	18	18	18	18	12	12	12	12	15	15	15	15	32	32	32	32	24	24	24	24	25	25	25	25				
VIEW NUMBER (E=existing, P=proposed) Alternative (d=downstream, u=up, s=supplemental)		E	P	P	P	E	P	P	P	E	P	P	P	E	P	P	P	E	P	P	P	E	P	P	P	E	P	P	P	E	P	P	P
VIVIDNESS	Foreground	LAND	1	1	1	1	3	3	3	3	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	4	4	4	4			
		WATER					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5	5	5	5	1	1	1	1			
		VEGETATION	1	1	1	1	1	1	1	1	2	2	2	2	4	4	4	4	3	3	3	3	3	3	3	3	2	2	2	2			
		MAN-MADE	5	5	5	5	1	1	1	1	3	3	3	3	2	2	2	2	3	3	3	3	4	4	4	4	2	2	2	2			
	AVERAGE	1.75	1.75	1.75	1.75	1.50	1.50	1.50	1.50	1.75	1.75	1.75	1.75	2.00	2.00	2.00	2.00	2.25	2.25	2.25	2.25	3.25	3.25	3.25	3.25	2.25	2.25	2.25	2.25				
	Middle ground	LAND	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2			
		WATER	6	6	6	6	1	1	1	1	1	1	1	1	7	7	7	7	1	1	1	1	5	5	5	5	1	1	1	1			
		VEGETATION	1	1	1	1	4	4	4	4	3	3	3	3	1	1	1	1	3	3	3	3	3	3	3	3	3	3	3	3			
		MAN-MADE	2	2	2	2	1	1	1	1	3	3	3	3	6	5	5	6	3	4	5	4	4	4	4	4	2	3	3	3			
	AVERAGE	2.50	2.50	2.50	2.50	1.75	1.75	1.75	1.75	2.00	2.00	2.00	2.00	3.75	3.50	3.50	3.75	2.25	2.00	2.25	2.00	3.50	3.50	3.50	3.50	2.00	2.25	2.25	2.25				
	Background	LAND	2	2	2	2	1	1	1	1	1	1	1	1	4	4	4	4	2	1	1	1	3	3	3	3	1	1	1	1			
		WATER	6	6	6	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4	4	4	4	1	1	1	1			
VEGETATION		4	4	4	4	4	4	4	4	1	1	1	1	2	2	2	2	2	1	1	1	2	2	2	2	2	1	1	1				
MAN-MADE		6	5	5	5	3	3	3	4	6	4	4	6	3	3	3	3	1	1	1	1	3	3	3	3	1	2	2	2				
AVERAGE	4.50	4.25	4.25	4.25	2.25	2.25	2.25	2.50	2.25	1.75	1.75	2.25	2.50	2.50	2.50	2.50	1.50	1.00	1.00	1.00	3.00	3.00	3.00	3.00	1.25	1.25	1.25	1.25					
INTACTNESS	Foreground	MAN MADE	3	3	3	3	6	6	6	6	3	3	3	3	5	5	5	5	3	3	3	3	4	4	4	4	4	4	4	4			
		NATURAL ENVIRONMENT	3	3	3	3	3	3	3	3	3	3	3	3	1	1	1	1	3	3	3	3	4	4	4	4	4	4	4	4			
		AVERAGE	3.00	3.00	3.00	3.00	4.50	4.50	4.50	4.50	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00			
	Middle ground	MAN MADE	6	6	6	6	4	4	4	4	4	4	4	4	3	2	3	3	5	3	3	3	4	4	4	4	5	5	5	5			
		NATURAL ENVIRONMENT	6	6	6	6	3	3	3	3	4	4	4	4	3	2	3	3	5	3	3	3	4	4	4	4	5	5	5	5			
		AVERAGE	6.00	6.00	6.00	6.00	3.50	3.50	3.50	3.50	4.00	4.00	4.00	4.00	3.00	2.00	3.00	3.00	5.00	3.00	3.00	3.00	4.00	4.00	4.00	4.00	5.00	5.00	5.00	5.00			
	Background	MAN MADE	3	3	3	3	5	4	4	4	2	3	5	2	4	4	4	4	6	3	3	3	4	4	4	4	6	5	5	5			
		NATURAL ENVIRONMENT	3	3	3	3	2	2	2	2	2	3	5	2	3	3	3	3	6	3	3	3	4	4	4	4	6	5	5	5			
		AVERAGE	3.00	3.00	3.00	3.00	3.50	3.00	3.00	3.00	2.00	19.50	5.00	2.00	3.50	3.50	3.50	3.50	6.00	3.00	3.00	3.00	4.00	4.00	4.00	4.00	6.00	5.00	5.00	5.00			
	UNITY	Foreground	MAN-MADE	5	5	5	5	4	4	4	4	2	2	2	2	5	5	5	5	3	3	3	3	3	3	3	3	6	6	6	6		
			OVERALL	5	5	5	5	4	4	4	4	4	4	4	4	5	5	5	5	3	3	3	3	3	3	3	3	6	6	6	6		
			AVERAGE	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00	3.00	3.00	3.00	3.00	5.00	5.00	5.00	5.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	6.00	6.00	6.00	6.00		
Middle ground		MAN-MADE	3	3	3	3	4	4	4	4	3	3	3	3	2	3	3	2	2	4	3	3	4	4	4	4	3	3	3	3			
		OVERALL	3	3	3	3	4	4	4	4	3	3	3	3	5	5	5	5	2	4	3	3	4	4	4	4	3	3	3	3			
		AVERAGE	3.00	3.00	3.00	3.00	4.00	4.00	4.00	4.00	3.00	3.00	3.00	3.00	3.50	4.00	4.00	3.50	2.00	4.00	3.00	3.00	4.00	4.00	4.00	4.00	3.00	3.00	3.00	3.00			
Background	MAN-MADE	5	6	6	6	3	5	5	5	6	4	3	6	3	3	3	3	4	2	2	2	5	5	5	5	3	3	3	3				
	OVERALL	5	6	6	6	3	5	5	4	5	4	3	5	2	2	2	2	4	2	2	2	5	5	5	5	3	3	3	3				
	AVERAGE	5.00	6.00	6.00	6.00	3.00	5.00	5.00	4.50	5.50	4.00	3.00	5.50	2.50	2.50	2.50	2.50	4.00	2.00	2.00	2.00	5.00	5.00	5.00	5.00	3.00	3.00	3.00	3.00				
AVERAGES		Foreground	3.25	3.25	3.25	3.25	3.33	3.33	3.33	3.33	2.58	2.58	2.58	2.58	3.33	3.33	3.33	3.33	2.75	2.75	2.75	2.75	3.42	3.42	3.42	3.42	4.08	4.08	4.08	4.08			
		Middleground	3.83	3.83	3.83	3.83	3.08	3.08	3.08	3.08	3.00	3.00	3.00	3.00	3.42	3.17	3.50	3.42	3.08	3.00	2.75	2.67	3.83	3.83	3.83	3.83	3.33	3.42	3.42	3.42			
		Background	4.17	4.42	4.42	4.42	2.92	3.42	3.42	3.33	3.25	8.42	3.25	3.25	2.83	2.83	2.83	2.83	3.83	2.00	2.00	2.00	4.00	4.00	4.00	4.00	3.42	3.08	3.08	3.08			
TOTAL VISUAL QUALITY			3.75	3.83	3.83	3.83	3.11	3.28	3.28	3.25	2.94	4.67	2.94	2.94	3.19	3.11	3.22	3.19	3.22	2.58	2.50	2.47	3.75	3.75	3.75	3.75	3.61	3.53	3.53	3.53			

Evaluation Scale 7 = VERY HIGH
 6 = HIGH
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Columbia River Crossing

VIEWS TO THE ROADWAY

May 2007

Prepared by: Derek Chisholm

Viewpoint		21_Hayden on 1-5 NB				33_Ilchee Statue				20_River Rd				19_Hayden Island Cond				14_Water Front Park				34_Fort "Kanaka" Village					
		VIEW NUMBER (E=existing, P=proposed) Alternative (d=downstream, u=up, s=supplmental)	21 E E	P D	P U	P S	33 E E	P D	P U	P S	20 E E	P D	P U	P S	19 E E	P D	P U	P S	14 E E	P D	P U	P S	34 E E	P D	P U	P S	
VIVIDNESS	Foreground	LAND	2	3	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
		WATER	1	1	1	1	6	6	6	6	1	1	1	1	4	4	4	4	5	5	5	5	1	1	1	1	
		VEGETATION	1	1	1	1	3	3	3	3	3	3	3	3	2	2	2	2	2	2	2	2	2	2	2	2	
		MAN-MADE	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1	2	2	2	2	2	2	2	2	
	AVERAGE	1.50	1.75	1.25	1.25	3.25	3.25	3.25	3.25	2.00	2.00	2.00	2.00	2.25	2.25	2.25	2.25	2.75	2.75	2.75	2.75	1.75	1.75	1.75	1.75		
	Middle ground	LAND	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	
		WATER	1	1	1	1	6	6	6	6	1	1	1	1	4	4	4	4	6	6	6	6	1	1	1	1	
		VEGETATION	1	1	1	1	5	5	5	5	1	1	1	1	1	1	1	1	2	2	2	2	4	4	4	4	
		MAN-MADE	4	3	3	4	4	4	4	4	5	4	3	5	5	4	4	5	2	2	2	2	2	4	4	2	
	AVERAGE	1.75	1.50	1.50	1.75	4.25	4.25	4.25	4.25	2.00	1.75	1.50	2.00	2.75	2.50	2.50	2.75	3.00	3.00	3.00	3.00	2.25	2.75	2.25	2.25		
	Background	LAND	1	1	1	1	3	3	3	3	1	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1	
		WATER	1	1	1	1	4	4	4	4	1	1	1	1	4	4	4	4	6	6	6	6	1	1	1	1	
VEGETATION		1	1	1	1	4	4	4	4	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1	1		
MAN-MADE		4	3	3	4	4	4	4	4	4	4	4	4	5	4	4	5	6	4	4	6	2	2	2	2		
AVERAGE	1.75	1.50	1.50	1.75	3.75	3.75	3.75	3.75	2.00	2.00	2.00	2.00	3.00	2.75	2.75	3.00	4.00	3.50	3.50	4.00	1.25	1.25	1.25	1.25			
INTACTNESS	Foreground	MAN MADE	4	5	4	4	4	4	4	6	6	6	6	6	6	6	6	5	5	5	5	6	6	6	6		
		NATURAL ENVIRONMENT	4	5	4	4	4	4	4	4	3	3	3	3	6	6	6	6	5	5	5	5	6	6	6	6	
		AVERAGE	4.00	5.00	4.00	4.00	4.00	4.00	4.00	4.00	4.50	4.50	4.50	4.50	6.00	6.00	6.00	6.00	5.00	5.00	5.00	5.00	6.00	6.00	6.00	6.00	
	Middle ground	MAN MADE	3	4	2	2	4	4	4	4	3	3	2	2	4	4	4	4	6	6	6	6	5	5	4	5	
		NATURAL ENVIRONMENT	3	4	2	2	4	4	4	4	3	3	2	2	4	4	4	4	6	6	6	6	5	5	4	5	
		AVERAGE	3.00	4.00	2.00	2.00	4.00	4.00	4.00	4.00	3.00	3.00	2.00	2.00	4.00	4.00	4.00	4.00	6.00	6.00	6.00	6.00	5.00	5.00	4.00	5.00	
	Background	MAN MADE	3	4	2	2	4	4	4	4	3	3	3	3	2	2	2	2	2	2	2	2	4	4	4	3	
		NATURAL ENVIRONMENT	3	4	2	2	4	4	4	4	3	3	3	3	2	2	2	2	2	2	2	2	4	4	4	3	
		AVERAGE	3.00	4.00	2.00	2.00	4.00	4.00	4.00	4.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	4.00	4.00	4.00	3.00	
	UNITY	Foreground	MAN-MADE	3	3	3	3	5	5	5	5	3	3	3	3	2	2	2	2	3	3	3	3	5	5	5	5
			OVERALL	3	3	3	3	5	5	5	5	3	3	3	3	2	2	2	2	3	3	3	3	5	5	5	5
			AVERAGE	3.00	3.00	3.00	3.00	5.00	5.00	5.00	5.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00	3.00	3.00	3.00	3.00	5.00	5.00	5.00	5.00
Middle ground		MAN-MADE	4	3	4	2	5	5	5	5	4	3	3	4	3	3	3	3	3	3	3	3	4	4	2	4	
		OVERALL	4	3	4	2	5	5	5	5	4	3	3	4	3	3	3	3	3	3	3	3	4	4	2	4	
		AVERAGE	4.00	3.00	4.00	2.00	5.00	5.00	5.00	5.00	4.00	3.00	3.00	4.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	4.00	4.00	2.00	4.00	
Background	MAN-MADE	4	3	3	3	5	5	5	5	3	3	3	3	3	4	4	3	4	5	6	4	3	3	3	2		
	OVERALL	4	3	3	3	5	5	5	5	3	3	3	3	3	4	4	3	4	5	6	4	3	3	3	2		
	AVERAGE	4.00	3.00	3.00	3.00	5.00	5.00	5.00	5.00	3.00	3.00	3.00	3.00	3.00	4.00	4.00	4.00	3.00	4.00	5.00	6.00	4.00	3.00	3.00	3.00	2.00	
AVERAGES		Foreground	2.83	3.25	2.75	2.75	4.08	4.08	4.08	4.08	3.17	3.17	3.17	3.17	3.42	3.42	3.42	3.42	3.58	3.58	3.58	3.58	4.25	4.25	4.25	4.25	
		Middleground	2.92	2.83	2.50	1.92	4.42	4.42	4.42	4.42	3.00	2.58	2.17	2.67	3.25	3.17	3.17	3.25	4.00	4.00	4.00	4.00	3.75	3.92	2.75	3.75	
		Background	2.92	2.83	2.17	2.25	4.25	4.25	4.25	4.25	2.67	2.67	2.67	2.67	2.67	2.92	2.92	2.67	3.33	3.50	3.83	3.33	2.75	2.75	2.75	2.08	
TOTAL VISUAL QUALITY			2.89	2.97	2.47	2.31	4.25	4.25	4.25	4.25	2.94	2.81	2.67	2.83	3.11	3.17	3.17	3.11	3.64	3.69	3.81	3.64	3.58	3.64	3.25	3.36	

Evaluation Scale 7 = VERY HIGH
 6 = HIGH
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 2 = LOW
 1 = VERY LOW TO NON-EXIST

Columbia River Crossing

VIEWS TO HCT

May 2007

Prepared by: Derek Chisholm

Viewpoint		31_Evergreen Overpass NB											10_Courthouse													
		VIEW NUMBER (E=existing, P=proposed) Alternative transit alignments	31 E	P	P	P	P	P	P	P	P	P	P	10 E	P	P	P	P	P	P	P	P	P	P		
		E	Main	Wash	Col	Brod	Col/ Wash	Main/ Wash	16th	McL	BRT	LRT	No HCT	E	Main	Wash	Col	Brod	Col/ Wash	Main/W ash	16th	McL	BRT	LRT	No HCT	
VIVIDNESS	Foreground	LAND	2							1			1	1	1	1	1	1	1	1						
		WATER	1							1	1			1	1	1	1	1	1	1	1					
		VEGETATION	2							1	1			1	3	3	3	3	3	3	3					
		MAN-MADE	5							6	6			6	2	2	2	2	3	3	3					
		AVERAGE	2.50	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.25	0.00	0.00	2.25	1.75	1.75	1.75	1.75	2.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00
	Middle ground	LAND	1							1	1			1	1	1	1	1	1	1	1					
		WATER	1							1	1			1	1	1	1	1	1	1	1					
		VEGETATION	1							1	1			1	3	3	3	3	3	3	3					
		MAN-MADE	5							6	6			6	2	2	3	2	2	2	2					
		AVERAGE	2.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	2.25	0.00	0.00	2.25	1.75	1.75	2.00	1.75	1.75	1.75	1.75	0.00	0.00	0.00	0.00	0.00
	Background	LAND	1							1	1			1	1	1	1	1	1	1	1					
		WATER	1							1	1			1	1	1	1	1	1	1	1					
VEGETATION		3							3	3			3	2	2	2	2	2	2	2						
MAN-MADE		3							5	3			3	4	4	4	4	4	4	4						
	AVERAGE	2.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	2.00	0.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	
INTACTNESS	Foreground	MAN MADE	2						1	1			1	4	5	4	4	5	5	5						
		NATURAL ENVIRONMENT	2						1	1			1	4	5	4	4	5	5	5	5					
		AVERAGE	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	4.00	5.00	4.00	4.00	5.00	5.00	5.00	0.00	0.00	0.00	0.00	0.00
	Middle ground	MAN MADE	2							1	1			1	3	3	4	3	3	3	3					
		NATURAL ENVIRONMENT	2							1	1			1	3	3	4	3	3	3	3					
		AVERAGE	2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	3.00	3.00	4.00	3.00	3.00	3.00	3.00	0.00	0.00	0.00	0.00	0.00
Background	MAN MADE	2							2	2			2	3	3	3	3	3	3	3						
	NATURAL ENVIRONMENT	2							2	2			2	3	3	3	3	3	3	3						
	AVERAGE	2.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00	0.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	0.00	0.00	0.00	0.00	0.00	
UNITY	Foreground	MAN-MADE	6						6	6			6	4	5	4	4	5	5	5						
		OVERALL	6						6	6			6	4	5	4	4	5	5	5						
		AVERAGE	6.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	6.00	0.00	0.00	6.00	4.00	5.00	4.00	4.00	5.00	5.00	5.00	0.00	0.00	0.00	0.00	0.00
	Middle ground	MAN-MADE	4							5	5			5	3	4	4	4	4	4	4					
		OVERALL	4							5	5			5	3	4	4	4	4	4	4					
		AVERAGE	4.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	5.00	0.00	0.00	5.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	0.00	0.00	0.00	0.00	0.00
Background	MAN-MADE	3							4	3			3	6	5	5	5	5	5	5						
	OVERALL	3							4	3			3	6	5	5	5	5	5	5						
	AVERAGE	3.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	3.00	0.00	0.00	3.00	6.00	5.00	5.00	5.00	5.00	5.00	5.00	0.00	0.00	0.00	0.00	0.00	
AVERAGES	Foreground	3.50	0.00	0.00	0.00	0.00	0.00	0.00	3.00	3.08	0.00	0.00	3.08	3.25	3.92	3.25	3.25	4.00	4.00	4.00	0.00	0.00	0.00	0.00	0.00	
	Middleground	2.67	0.00	0.00	0.00	0.00	0.00	0.00	2.75	2.75	0.00	0.00	2.75	2.58	2.92	3.33	2.92	2.92	2.92	2.92	0.00	0.00	0.00	0.00	0.00	
	Background	2.33	0.00	0.00	0.00	0.00	0.00	0.00	2.83	2.33	0.00	0.00	2.33	3.67	3.33	3.33	3.33	3.33	3.33	3.33	0.00	0.00	0.00	0.00	0.00	
TOTAL VISUAL QUALITY		2.83	0.00	0.00	0.00	0.00	0.00	0.00	2.86	2.72	0.00	0.00	2.72	3.17	3.39	3.31	3.17	3.42	3.42	3.42	0.00	0.00	0.00	0.00	0.00	

Evaluation Scale 7 = VERY HIGH
 6 = HIGH
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 3 = MODERATELY LOW
 2 = LOW
 1 = VERY LOW TO NON-EXISTENT

Columbia River Crossing

VIEWS TO HCT

May 2007

Prepared by: Derek Chisholm

		Viewpoint 9_Main St & 16th (Hist. Museum)												7_Main St & 20th													
		VIEW NUMBER (E=existing, P=proposed) Alternative transit alignments																									
		9 E	P	P	P	P	P	P	P	P	P	P	P	P	7 E	P	P	P	P	P	P	P	P	P	P		
	E	Main	Wash	Col	Brod	Col/ Wash	Main/W ash	16th	McL	BRT	LRT	No HCT	E	Main	Wash	Col	Brod	Col/ Wash	Main/W ash	16th	McL	BRT	LRT	No HCT			
VIVIDNESS	Foreground	LAND	2	2	2	2	2			2	2				1									1	1	1	
		WATER	1	1	4	1	1								1										1	1	1
		VEGETATION	4	4	4	4	4			4	4				2										2	2	2
		MAN-MADE	3	5	3	3	3			5	3				2										3	3	2
		AVERAGE	2.50	3.00	3.25	2.50	2.00	0.00	0.00	2.75	2.25	0.00	0.00	0.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75	1.75	1.50
	Middle ground	LAND	2	2	2	2	2			2	2				1										1	1	1
		WATER	1	1	1	1	1			1	1				1										1	1	1
		VEGETATION	3	3	3	3	3			3	2				2										2	2	2
		MAN-MADE	2	2	3	3	2			3	2				5										5	5	5
		AVERAGE	2.00	2.00	2.25	2.25	2.00	0.00	0.00	2.25	1.75	0.00	0.00	0.00	2.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	2.25	2.25
	Background	LAND	2	2	2	2	2			2	2				1										1	1	1
		WATER	1	1	1	1	1			1	1				1										1	1	1
VEGETATION		2	2	2	2	2			2	2				2										2	2	2	
MAN-MADE		2	2	2	2	2			2	2				1										1	1	1	
AVERAGE		1.75	1.75	1.75	1.75	1.75	0.00	0.00	1.75	1.75	0.00	0.00	0.00	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.25	1.25	1.25	
INTACTNESS	Foreground	MAN MADE	5	4	5	5	5			4	4				3									3	3	3	
		NATURAL ENVIRONMENT	2	2	2	2	2			2	2				3										3	3	3
		AVERAGE	3.50	3.00	3.50	3.50	3.50	0.00	0.00	3.00	3.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	3.00	3.00
	Middle ground	MAN MADE	4	4	4	4	4			3	4				4										3	3	4
		NATURAL ENVIRONMENT	2	2	2	2	2			2	2				4										3	3	4
		AVERAGE	3.00	3.00	3.00	3.00	3.00	0.00	0.00	2.50	3.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	3.00	4.00
Background	MAN MADE	5	5	5	5	5			5	5				6										6	6	6	
	NATURAL ENVIRONMENT	3	3	3	3	3			3	3				2										2	2	2	
	AVERAGE	4.00	4.00	4.00	4.00	4.00	0.00	0.00	4.00	4.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	4.00	4.00	
UNITY	Foreground	MAN-MADE	4	5	4	4	4			3	4				4									4	4	4	
		OVERALL	4	5	4	4	4			3	4				4									4	4	4	
		AVERAGE	4.00	5.00	4.00	4.00	4.00	0.00	0.00	3.00	4.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	4.00	4.00
	Middle ground	MAN-MADE	4	5	4	4	4			3	4				4										5	6	4
		OVERALL	4	5	4	4	4			3	4				4										5	6	4
		AVERAGE	4.00	5.00	4.00	4.00	4.00	0.00	0.00	3.00	4.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	6.00	4.00
Background	MAN-MADE	2	2	2	2	2			2	2				4										4	4	4	
	OVERALL	2	2	2	2	2			2	2				4										4	4	4	
	AVERAGE	2.00	2.00	2.00	2.00	2.00	0.00	0.00	2.00	2.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	4.00	4.00	
AVERAGES		Foreground	3.33	3.67	3.58	3.33	3.17	0.00	0.00	2.92	3.08	0.00	0.00	0.00	2.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.92	2.92	2.83	
		Middleground	3.00	3.33	3.08	3.08	3.00	0.00	0.00	2.58	2.92	0.00	0.00	0.00	3.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.42	3.75	3.42	
		Background	2.58	2.58	2.58	2.58	2.58	0.00	0.00	2.58	2.58	0.00	0.00	0.00	3.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.08	3.08	3.08	
TOTAL VISUAL QUALITY			2.97	3.19	3.08	3.00	2.92	0.00	0.00	2.69	2.86	0.00	0.00	0.00	3.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.14	3.25	3.11	

Evaluation Scale 7 = VERY HIGH
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Columbia River Crossing

VIEWS TO HCT

May 2007

Prepared by: Derek Chisholm

Viewpoint		1_ 39th St Overpass looking W													4_ 39th St Overpass looking SB												
		VIEW NUMBER (E=existing, P=proposed) Alternative transit alignments	1 E	P	P	P	P	P	P	P	P	P	P	P	1 P	4 E	P	P	P	P	P	P	P	P	P		
		E	Main	Wash	Col	Brod	Col/ Wash	Main/W ash	16th	McL	BRT	LRT	No HCT	I-5	E	Main	Wash	Col	Brod	Col/ Wash	Main/W ash	16th	McL	BRT	LRT		
VIVIDNESS	Foreground	LAND	1	1										1	1	1											
		WATER	1	1											1	1	1										
		VEGETATION	1	1											1	1	1										
		MAN-MADE	2	2											2	4	4										
		AVERAGE	1.25	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.25	1.75	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Middle ground	LAND	1	1											1	2	2										
		WATER	1	1											1	1	1										
		VEGETATION	2	2											2	3	3										
		MAN-MADE	2	2											2	4	4										
		AVERAGE	1.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.50	2.50	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Background	LAND	2	2											2	2	2										
		WATER	1	1											1	1	1										
VEGETATION		3	3											3	1	1											
MAN-MADE		2	2											4	2	2											
	AVERAGE	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	1.50	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
INTACTNESS	Foreground	MAN MADE	5	5										5	3	3											
		NATURAL ENVIRONMENT	5	5											5	3	3										
		AVERAGE	5.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	3.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Middle ground	MAN MADE	5	5											5	3	3										
		NATURAL ENVIRONMENT	5	5											5	3	3										
		AVERAGE	5.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	3.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Background	MAN MADE	5	5											4	4	4											
	NATURAL ENVIRONMENT	5	5											4	4	4											
	AVERAGE	5.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
UNITY	Foreground	MAN-MADE	4	4										4	4	4											
		OVERALL	4	4											4	4	4										
		AVERAGE	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Middle ground	MAN-MADE	3	3											3	3	3										
		OVERALL	3	3											3	3	3										
		AVERAGE	3.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	3.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Background	MAN-MADE	3	3											2	3	3											
	OVERALL	3	3											2	3	3											
	AVERAGE	3.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	3.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
AVERAGES		Foreground	3.42	3.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.42	2.92	2.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		Middleground	3.17	3.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.17	2.83	2.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		Background	3.33	3.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.83	2.83	2.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
TOTAL VISUAL QUALITY			3.31	3.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.14	2.86	2.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Evaluation Scale 7 = VERY HIGH
 6 = HIGH
 5 = MODERATELY HIGH
 4 = AVERAGE
 3 = MODERATELY LOW
 2 = LOW
 1 = VERY LOW TO NON-EXIST

Columbia River Crossing

VIEWS TO HCT

May 2007

Prepared by: Derek Chisholm

Viewpoint		3_35th & K St														22_Floating Homes									
		VIEW NUMBER (E=existing, P=proposed)		P	P	3	P	P	P	P	P	P	P	P	P	3	22	P	P	P	P	P	P		
		Alternative transit alignments		No HCT	I-5	E	Main	Wash	Col	Brod	Col/Wash	Main/Wash	16th	McL	BRT	LRT	No HCT	I-5	E	D ADJ	D OFF	U ADJ	U OFF	S ADJ	S OFF
VIVIDNESS	Foreground	LAND		1	1	1											1	1	1	1	1	1	1	1	
		WATER		1	1	1												1	6	6	6	6	6	6	6
		VEGETATION		1	1	1												1	1	1	1	1	1	1	1
		MAN-MADE		4	2	2												2	2	2	2	2	2	2	2
	AVERAGE	0.00	1.75	1.25	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.25	2.50	2.50	2.50	2.50	2.50	2.50	2.50	
	Middle ground	LAND		2	2	2											2	2	2	2	2	2	2	2	
		WATER		1	1	1												1	6	6	6	6	6	6	6
		VEGETATION		3	4	2												2	2	2	2	2	2	2	2
		MAN-MADE		6	2	2												5	4	5	4	5	5	4	4
	AVERAGE	0.00	3.00	2.25	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	3.50	3.75	3.50	3.75	3.75	3.50	3.50	
	Background	LAND		2	1	1											1	2	2	2	2	2	2	2	
		WATER		1	1	1												1	1	1	1	1	1	1	
VEGETATION			1	1	1												1	2	2	2	2	2	2	2	
MAN-MADE			2	1	1												1	2	2	2	2	2	2	2	
AVERAGE	0.00	1.50	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.75	1.75	1.75	1.75	1.75	1.75	1.75		
INTACTNESS	Foreground	MAN MADE		3	4	4											4	6	6	6	6	6	6	6	
		NATURAL ENVIRONMENT		3	4	4												4	6	6	6	6	6	6	6
	AVERAGE	0.00	3.00	4.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	
	Middle ground	MAN MADE		2	5	5												3	5	3	4	3	3	4	4
		NATURAL ENVIRONMENT		2	5	5												3	5	3	4	3	3	4	4
	AVERAGE	0.00	2.00	5.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	5.00	3.00	4.00	3.00	3.00	4.00	4.00	
Background	MAN MADE		4	2	2												2	6	6	6	6	6	6	6	
	NATURAL ENVIRONMENT		4	2	2												2	6	6	6	6	6	6	6	
AVERAGE	0.00	4.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00		
UNITY	Foreground	MAN-MADE		3	3	3											3	4	4	4	4	4	4	4	
		OVERALL		3	3	3												3	4	4	4	4	4	4	4
	AVERAGE	0.00	3.00	3.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	
	Middle ground	MAN-MADE		2	3	3												5	3	3	3	3	3	3	3
		OVERALL		2	3	3												5	3	3	3	3	3	3	3
	AVERAGE	0.00	2.00	3.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	
Background	MAN-MADE		3	2	2												2	3	3	3	3	3	3	3	
	OVERALL		3	2	2												2	3	3	3	3	3	3	3	
AVERAGE	0.00	3.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00		
AVERAGES		Foreground	0.00	2.58	2.75	2.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.75	4.17	4.17	4.17	4.17	4.17	4.17	4.17	
		Middleground	0.00	2.33	3.42	3.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.50	3.83	3.25	3.50	3.25	3.25	3.50	3.50	
		Background	0.00	2.83	1.67	1.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	3.58	3.58	3.58	3.58	3.58	3.58	3.58	
TOTAL VISUAL QUALITY			0.00	2.58	2.61	2.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.64	3.86	3.67	3.75	3.67	3.67	3.75	3.75	

Evaluation Scale 7 = VERY HIGH
 6 = HIGH
 5 = MODERATELY HIGH
 4 = AVERAGE
 3 = MODERATELY LOW
 2 = LOW
 1 = VERY LOW TO NON-EXIST

(ADJ=adjacent alignmne)

Columbia River Crossing

May 2007

Prepared by: Derek Chisholm

Viewpoint			5_Leverich Park														
		VIEW NUMBER (E=existing, P=proposed)	5	P	P	P	P	P	P	P	P	P	P	P	P		
		Alternative transit alignments	E	Main	Wash	Col	Brod	Col/ Wash	Main/W ash	16th	McL	BRT	LRT	No HCT	I-5		
VIVIDNESS	Foreground	LAND	3													3	
		WATER	1														1
		VEGETATION	2														2
		MAN-MADE	1														1
		AVERAGE	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75
	Middle ground	LAND	4														4
		WATER	1														1
		VEGETATION	3														3
		MAN-MADE	2														2
		AVERAGE	2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50
	Background	LAND	1														1
		WATER	1														1
VEGETATION		5														5	
MAN-MADE		2														3	
AVERAGE		2.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.50	
INTACTNESS	Foreground	MAN MADE	7													7	
		NATURAL ENVIRONMENT	7													7	
		AVERAGE	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.00	
	Middle ground	MAN MADE	6													6	
		NATURAL ENVIRONMENT	6													6	
		AVERAGE	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	
Background	MAN MADE	6													5		
	NATURAL ENVIRONMENT	6													5		
	AVERAGE	6.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00		
UNITY	Foreground	MAN-MADE	5													5	
		OVERALL	5													5	
		AVERAGE	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	
	Middle ground	MAN-MADE	5													5	
		OVERALL	5													5	
		AVERAGE	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	
Background	MAN-MADE	3													3		
	OVERALL	3													3		
	AVERAGE	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00		
AVERAGES		Foreground	4.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.58	
		Middleground	4.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	
		Background	3.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.50	
TOTAL VISUAL QUALITY			4.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.19	

Evaluation Scale
 7 = VERY HIGH
 6 = HIGH
 5 = MODERATELY HIGH
 4 = AVERAGE
 3 = MODERATELY LOW
 2 = LOW
 1 = VERY LOW TO NON-EXIST

Columbia River Crossing								
VIEWS TO PARK AND RIDES								
May 2007	Prepared by: Derek Chisholm							
	Viewpoint	35_Kiggens Bowl			36_Clark College			
	VIEW NUMBER (E=existing, P=proposed)	E	P		E	P		
	Alternative (NB=no build, PR=park and ride structure)	NB	PR		NB	PR		
	LAND	1	1		2	2		
	WATER	1	1		1	1		
	Foreground VEGETATION	1	1		2	2		
	MAN-MADE	3	3		1	1		
	AVERAGE	1.50	1.50		1.50	1.50		
	LAND	1	1		2	2		
	Middle ground WATER	1	1		1	1		
VIVIDNESS	VEGETATION	1	1		4	4		
	MAN-MADE	2	2		2	2		
	AVERAGE	1.25	1.25		2.25	2.25		
	LAND	1	1		1	1		
	Background WATER	1	1		1	1		
	VEGETATION	5	5		2	2		
	MAN-MADE	1	4		1	1		
	AVERAGE	2.00	2.75		1.25	1.25		
	MAN MADE	5	5		7	7		
	Foreground NATURAL ENVIRONMENT	5	5		7	7		
	AVERAGE	5.00	5.00		7.00	7.00		
	MAN MADE	5	5		6	6		
INTACTNESS	Middle ground NATURAL ENVIRONMENT	5	5		6	6		
	AVERAGE	5.00	5.00		6.00	6.00		
	MAN MADE	6	3		6	6		
	Background NATURAL ENVIRONMENT	6	3		6	6		
	AVERAGE	6.00	3.00		6.00	6.00		
	MAN-MADE	3	3		6	6		
	Foreground OVERALL	3	3		6	6		
	AVERAGE	3.00	3.00		6.00	6.00		
	MAN-MADE	4	4		6	6		
UNITY	Middle ground OVERALL	4	4		6	6		
	AVERAGE	4.00	4.00		6.00	6.00		
	MAN-MADE	3	2		4	4		
	Background OVERALL	3	2		4	4		
	AVERAGE	3.00	2.00		4.00	4.00		
	AVERAGES Foreground	3.17	3.17		4.83	4.83		
	Middleground	3.42	3.42		4.75	4.75		
	Background	3.67	2.58		3.75	3.75		
	TOTAL VISUAL QUALITY	3.42	3.06		4.44	4.44		
	Evaluation Scale	7 = VERY HIGH						
		6 = HIGH						
		5 = MODERATELY HIGH						
		4 = AVERAGE						
		3 = MODERATELY LOW						
		2 = LOW						
		1 = VERY LOW TO NON-EXISTENT						

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